HUANG, Shuan-fan, 1941-
A STUDY OF ADVERBS.
The Ohio State University, Ph.D., 1971
Language and Literature, linguistics

University Microfilms, A XEROX Company, Ann Arbor, Michigan
A STUDY OF ADVERBS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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* * * * * *

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ACKNOWLEDGMENTS

My debt to Professor Charles J. Fillmore, my adviser, is enormous. Repeatedly he showed that I must think again. Whatever merit this study may have is the result of trying to satisfy his high standards. His patience with my late difficulties must have been sorely tried. I am also grateful to the following linguists for their encouragement and criticism at various times and in various ways: Professors Ilse Lehiste, Gaberell Drachman, David Stampe, Sandra Thompson and Arnold Zwicky. I am also indebted to Professor Paul Grice for introducing me to the philosophy of action through which I became interested in the grammar of the adverb. Thanks are also due my colleagues at the Project on Linguistic Analysis at Berkeley who put their native intuitions about English adverbs at my disposal and enabled me to understand many points which I would otherwise have misinterpreted. Finally I must thank Miss Marlene Deetz for a last-minute typing job and my wife for her constant encouragement and for typing preliminary drafts.
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INTRODUCTION

This thesis is concerned with the grammatical analysis of adverbs. An adverb is here defined semantically as a sentence constituent which expresses a function of a function, where the term function is to be understood in the sense in which it is used in the predicate calculus. Given this definition, it is clear that constituents satisfying it can vary greatly in their syntactic properties, both within a single language and across languages. The syntactic category of adverbs, then, somewhat in the style of Lyons (1966), can be defined, in languages for which it is relevant, as the part of speech satisfying the semantic definition for adverbs but failing to exhibit the inflectional or distributional properties of nouns, verbs, and adjectives.

How does linguistic theory account for the meanings of adverbs? How does the meaning of an adverb "interact" with meanings of other elements in a sentence? What are the constraints on adverbial movement? In this thesis I address myself to each of these questions. Chapter one is devoted to a general classification and exploration of the semantic roles of adverbs in sentences. I have identified and characterized a number of important semantic functions of adverbs. I take these semantic functions to be of fairly abstract character so that they carry cross-linguistic validity. Given these semantic functions, the same sorts of underlying properties of adverbs could
be seen to have diverse surface possibilities across languages in
the world. In chapter two I attempt to survey surface phenomena of
adverbs in a number of "exotic" languages. This chapter is regrettably
hampered by the paucity of relevant data at my disposal; it undoubtedly
needs to be considerably deepened and expanded to serve as the
groundwork for a serious typological study of adverbs. Chapter three
is a syntactic reconstruction of the semantic functions of adverbs;
it shows how grammatical theory provides explicit symbolic representa-
tion for a consistent interpretation of the semantic properties
adverbs contribute to sentences in which they appear. I argue that
degree and manner adverbs, and verb phrase adverbs in general, pose
special problems for the type of grammatical analysis which recognizes
only categories N, NP, S and V in deep structure, and that a deep
Adverb category may have to be countenanced which would serve to
indicate the semantic relationship of the so-called verb phrase modifier
and its head. In this chapter I also touch very briefly upon the
subject of subordinate clauses as they are related to the analysis of
certain classes of adverbs. Chapter four takes up the problem of
constraints on adverb movement both inside a clause and outside a
clause. I show that adverbial movement is subject to joint constraints
of two different sorts: (1) one relating to the location of major
syntactic breaks in the surface structure, and (2) one relating to
command and precede relationships between the logical element not and
the adverb. The study suggests that the position between a verb and
its prepositional object is a major syntactic break, since all VP
adverbs may occur in it. I also examine the relationships between the
interpretation of adverbs and their positions in surface structure.

Attention throughout the thesis is focused on one-word adverbs and adverbial phrases. No attempt is made to study adverbial subordinate clauses, which is in itself such a large topic that, had I taken it up, my non-native intuitions would have been doubly taxed. I also exclude from consideration instrumental adverbs and adverb phrases (though I believe they do not pose special problems) and such limiting adverbs as merely, only, particularly and even, etc. But even within these limits, there must inevitably be many other interesting aspects of the problem of adverbs that have escaped my attention, not to mention those that have eluded my understanding!

A number of linguists working within the framework of transformational grammar have contributed insights into the structure of adverbs, but a comprehensive account of the general properties of adverbs has yet to be undertaken. The authors of the UCLA grammar, a stupendous work of well over a thousand pages born of the results of concentrated inquiry over a period of three years, decided to leave the adverb aside, for, as they indicated in the preface, the adverb is simply not well-understood. This study is an exercise in trying to understand what the adverb is.
CHAPTER I

SEMANTIC ANALYSIS OF ADVERBS

The object of this chapter will be to supply a semantic classification of adverbs and to sort out the various functions which adverbs can have in sentences, so that the major features associated with adverbial expressions can be distinguished and studied separately.

To understand what is meant by the locution that adverbs modify verbs requires an inquiry into the particular ways verbs of action are grouped and distinguished from each other, and an analysis of the different aspects of actions associated with the verb. Concepts relevant to a general understanding of action sentences include that of Event, Participant in an Event, and Result of an Event. Some adverbs indicate a Participant's state of mind, as in "He carefully tiptoed into the room" (where carefully ascribes some state of mind to the agent he), or in "Mary was willingly taken advantage of" (where willingly ascribes some state of mind to the patient Mary). Adverbs like carefully and willingly will be referred to as state-of-mind adverbs, or, interchangeably, adverbs of state-of-mind. Some adverbs help to characterize the action indicated by the verb, as in "Johnny walks with a limp" or "He smiled broadly". I will call adverbs like with a limp and broadly manner adverbs. Some adverbs express an evaluation of the Actor's participation in the Event, as in "He wisely..."
escaped from the POW camp", or "He clumsily stepped on the snail".
I will call adverbs like wisely and clumsily evaluative adverbs.
Some adverbs describe aspects of the result of an event, as in "She wrote her name legibly" or "He spelled the words correctly". Adverbs like legibly and correctly will be called adverbs of result.¹

¹Action sentences include all aspects of the descriptive elements of action relevant to a semantic account of adverbs and that is why we focus our attention primarily on the action sentences. But sentences which express happenings, states of affairs and facts, etc., require no special treatment, since a semantic classification of adverbs in action sentences applies, mutatis mutandis, to these other types of sentences as well. Thus, on the basis of the above classification of adverbs, to be elaborated on in the sequel, we are in a position to state that happenings for instance, are events in which the actor plays no role and, consequently, manner adverbs and evaluative adverbs can never occur.

There are several different ways of analyzing the class of adverbs of state-of-mind, and each seems to shed some light on the semantic properties of these adverbs. For example, some (e.g., carefully) of these impute some state of mind to only the agent, while others (e.g., willingly, anxiously, gladly) have the dual functions of attributing some state of mind to either the agent or the patient; I know of no adverb which attributes a state of mind just to the patient. The following suggestion is merely an alternative which suits best the purpose for the matter at hand. Suppose John helped Mary. The action may be attributable to something in the nature of external causation or to the intentionality internal to the Agent. In John helped Mary sympathetically, ambitiously, charitably, purposely, out of mercy, out of retribution, etc., these adverbial
characterizations represent deliberate choice on the part of the Agent, the motivation for the Agent's doing of the action. There are also adverbial characterizations having to do with the volition and intent of the Agent in respect to the execution of the action. When John helped Mary intentionally, he did it with the awareness that there is an alternative course open to him. When John did it non-voluntarily, he did it because he was obliged to. On the other hand, if John did it unintentionally, unwittingly, or non-attentively, then though it is still an act of John's, it is neither voluntary nor obliged, since it is not done in the knowledge that there is or there is not an alternative course open to him. The adverb of state-of-mind habitually is an adverb with both intentional and temporal features. Only a type, not a single piece of action, is describable as a habit or as habitual. Syntactically, it cannot occur with point time adverbs (see below). Thus (1) is impossible:

(1) #John scratched his head habitually at his wedding ceremony.

The sentence in (2), however, is semantically sound:

(2) John scratched his head out of habit at his wedding ceremony.

though it still entails that John scratched his head habitually. What semantically differentiates out of habit from habitually is that the former in the sentence in which it occurs characterizes only a single piece of behavior, which probably accounts for the observed weakening of the Agent's intention and volition from that suggested in (1) to that in (2).

From the point of view of the degree with which the actor has control over his state of mind, adverbs of state-of-mind may be
conceived of as ranging from the fully volitional intentionally and deliberately, on the one hand, to the absent-minded unwittingly and accidentally on the other, so that these adverbs constitute a many-term set spanning the whole gamut of possible states of mind: intentionally, deliberately, carefully, thoughtfully, attentively, voluntarily, reluctantly, instinctively, automatically, impulsively, inadvertently, accidentally, carelessly, thoughtlessly. To these can also be added a number of more finely differentiated states of mind introduced by degree adverbs (see below) to the extent that they are required of and can be made generally intelligible in, especially, legal contexts. It is important legally not only to know whether John shot the dog intentionally or accidentally, but also to ascertain whether he did it intentionally, deliberately, or on purpose.

Some state-of-mind adverbs are ambiguous between the case where the state of mind is imputed to the actor during the period preceding the action indicated by the verb and the case where the state of mind is imputed to the actor during the action. Thus "John deliberately ate the soup" means either that John ate the soup from deliberation or that he did with deliberation. Similarly, "He carefully raised his hand" is ambiguous between the sense in which, say, he took care to perform the act as a part of some coordinated signal, and the sense in which he took care in raising his hand because he had no way of knowing where the cave was and he was afraid of bats. Most of the second type of

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2I owe this example to Prof. Fillmore.

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adverbs of state-of-mind, e.g. intentionally, are not subject to similar
ambiguous interpretations. The reason, I submit, is this. **Intention** is an internally induced state, must precede the actual taking place of action and must persist throughout the action. **Taking care,** on the other hand, often is and must be externally manifested, and can be partitioned into **taking care** prior to and during the act. We say **take care to,** **take care in,** **for the purpose of,** but **with the intention of.** It seems clear that **to** and **on** dissociate my **taking care** and **purpose** from my current action in a way with does not. In **carefully** and **deliberately** we find that the verbal root forms **care** (or **take care**) and **deliberate** are still usable as action verbs, while the root **intend** is not an action verb at all.³

³Austin (1970) gives essentially the same explanation.

The ambiguity, which is characteristic of some state-of-mind adverbs (the exact scope of this class of adverbs is difficult to delineate), can often be resolved by the position of the adverbs in a sentence, either before or after the verb signifying the action. For example, sentences (3) through (5) describe the manner in which John did these things, but (6) through (8) give an explanation for his performance of these acts.

(3) John drove the care carefully.
(4) John wandered about absent-mindedly.
(5) John read the book with interest.
(6) John carefully kept to the left of the road.
(7) John absent-mindedly put his foot in a puddle.
(8) John read the book from interest.
Observe that this semantic difference shows up also in connection with adjectival paraphrases in which different prepositions must be used:

(9) John played the piano attentively.

(10) John was attentive in playing the piano.

(11) John carefully sounded his horn at a turn.

(12) John showed his care in driving by sounding his horn at a turn.

(13) John drives carefully.

(14) John takes care in driving, not by driving.

Some adverbs, as mentioned earlier, characterize the result of the action identified by the verb, rather than the action per se. When John wrote the letter illegibly, what he wrote was illegible. Here it is senseless to interpret the adverb in question as characterizing the manner in which the action of writing is carried out as being illegible. Likewise, when someone stated something truthfully, (in) conclusively, (im) plausibly, and (un)justifiably, etc., what was stated was, respectively, truthful, (in) conclusive, (im) plausible and (un) justifiable.

Summarizing briefly what we have established so far, let us observe that action is a fairly complex notion. At least three important ideas revolve around it: the state of mind of the actor, the carrying out or actual performance of action, and the end result of action. Characterization or explanation of an action may be given to any of these three elements and natural languages may have provisions for separately characterizing each of them or may lack syntactic devices for consistently sorting them out and characterizing them.

If an action is characterized as slow, rapid, smooth or rough,
it is the way in which the action goes on that is being judged. If an action is characterized as profitable, correct, or wrong, it is the result of the action that is being judged. It appears that a greater majority of action-characterizing adverbs (and their adjectives) in English are either state-of-mind adverbs or evaluative adverbs, i.e. those which are used to judge the action with respect to its moral, practical and intellectual values, e.g., wisely, stupidly, foolishly, devotedly, nobly, and generously, etc. There are certain indeterminacies in thinking of certain adverbs as being more properly state-of-mind or manner adverbs: whether an adverb like sullenly is used to impute to the Agent a state of mind rather than to characterize his action or vice versa. Such an indeterminacy generally arises from the following consideration, I believe. The principle of economy of language dictates that natural language tolerate expressions which are usable to concurrently characterize the quality or the state of mind of the Agent in respect to his action in general and also to appraise the action which bears witness to that quality or state of mind. This explanation seems to be nicely in keeping with the familiar dictum that people are often judged by their actions.

In the following I will discuss the selectional restrictions between verbs and adverbs. It will, therefore, be necessary for me to quickly review the findings of Vendler (1967) on the semantic classification of verbs. Vendler identifies four types of verbs: state, activity, accomplishment and achievement verbs. Activity verbs like kick and kill are verbs whose actions go on in time. State verbs like like and love are not processes that go on in time, though one can like something at a given moment or for a certain period of time.
Mary's loving John is neither a process going on at present nor one consisting of phrases succeeding one another in time. Accomplishment verbs are verbs such as draw a circle, run a mile, dig a hole, write a letter and build a house. Suppose someone is drawing a circle or running a mile now. If he stops in the next moment, it may not be true that he did draw a circle or did run a mile. Accomplishment verbs all have a terminal point which has to be reached if the action is to be what it is claimed to be. Achievement verbs such as cure and die are verbs that indicate change of state and are predicated only for single moments of time.

As Vendler points out, there are a good number of borderline and ambiguous cases, but most fall squarely into one of these four types of verbs.

The three action-characterizing notions identified in the preceding paragraphs have to do with the actions indicated by activity verbs. Manner adverbs are proper to activity verbs and accomplishment verbs are generally not proper to achievement verbs. Thus John may have treated his patient carefully and conscientiously, but never cured him carefully or conscientiously. John may have looked at the portrait carefully or deliberately, but never spotted it in either of these two ways. Since some of the verbs of perception are achievement verbs, e.g. see, hear, detect, discover; some are activity verbs, such as watch, listen, probe, savor and search, it follows that one can watch the play carefully, but not see it carefully; one can probe the problem systematically, but not discover it systematically. Pure action verbs like look for, run and walk do not occur naturally with
adverbs of result, for with these it is the ongoing action associated with the verb that is the focus of interest.

In terms of the analysis of adverbs we have presented, it is clear that both accomplishment and achievement verbs are verbs that have an incorporated result and can occur most naturally with adverbs of result, e.g. He answered the questions satisfactorily or John was mortally wounded.

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I am aware that both tense and voice seem to play a role in the interpretation of adverbs in relation to the verbs. Thus the passive The questions were answered satisfactorily clearly has the result sense; whereas the progressive he is answering the question satisfactorily borders on ambiguity.

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The notions of Action and Result have applications in other stretches of linguistic territory as well. They are, it seems to me, important for the semantic description of adverbs one finds in a language such as Dyirbal (see chapter two). They also come in handy for the ambiguities regularly found in many verbal nouns: writing, painting, typing and building, each of which is ambiguous between the sense of action and of the result of that action. In predicative adjectives, some are predicated of the subject in relation to the action as its concomitant feature, as in John came limping; and some are predicated of the subject or object in relation to the result of the action, as in He shut the door tight (a different way of saying the same thing might be The door got tight from shutting).

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A sentence like The police shot him dead suggests that only one shot was fired; but The police shot him to death suggests repeated action of shooting. These sentences indicate the need to separate
two sorts of action: single and repeated. It seems that only activity verbs can take part in this type of construction. Thus drop, hit, jump and kick work like shoot, though not run, write and paint, etc.

addition, these notions must be appealed to in a semantic description of certain time and locative adverbs, to which we turn below.

Time and locative adverbs typically occur in action sentences and specify the temporal and spatial circumstances of the events. Time adverbs may indicate conceptually either single moments of time (point time adverb) or stretches of time (duration time adverbs). Point time adverbs may occur with activity verbs, as in "He was kicking the ball this morning", or with accomplishment verbs, as in "He dug a hole in the ground ten minutes ago", or with achievement verbs, as in "He proved the theorem in 1943".

Duration time adverbs may occur with activity or state verbs, in which case they serve to indicate the time span during which the action or the state goes on, as in "He kicked the ball for five minutes", or in "I knew him for three days". Duration time adverbs may not occur with either accomplishment or achievement verbs since these are verbs which may be predicated by Agents for single moments of time and only get along with point time adverbs. "He cured the patient for five years" is impossible; In "It took him five years to cure the patient", the duration of five years refers, naturally, not to the action of curing, but to that of treatment up to the point of recovery. "He cured the patient in five years" is semantically sound and equivalent to the immediately preceding sentence.

In terms of the Action-Result analysis, the duration of time can be located in three separate stretches of time: duration of the action,
duration between the time of speech act and the action of the main verb and duration of the resulting state:

**Duration of the Action:**

(15) John kicked the ball for five minutes.
(16) John brushed his hair in five minutes.

**Duration between the time of the speech act and the action of the main verb:**

(17) He will return home shortly.
(18) He will discuss it momentarily.

**Duration of the resulting state:**

(19) John flew to L.A. for five weeks.
(20) John removed his hat temporarily.

The duration time adverbs in (19) and (20) must be properly viewed as adverbs of result, as associating with the resulting states of the action of flying and removing a hat. (19) means that John flew to L.A. and then stayed for five weeks; (20) carries the idea that John removed his hat and was hatless temporarily. *Temporarily* occurs only with verbs which initiate states and cannot occur with activity verbs; *He drove the car temporarily* and *He kicked the boy temporarily* are impossible.

With regard to locative adverbs we may proceed along similar lines to distinguish those which indicate a point in location, as in *He drove the car in this seat*, from those which describe an expanse of location, as in "They flew from coast to coast". We may also speak of the location of the action, as in *He swims in the pool*, or the location between that of the speech act and of the action of the main verb, as in "A fire broke out three miles from..."
here", or the location after the action identified by the main verb, as in "He put the icebox in the garbage can" and "He locked himself outside the door." Here the objects of the actions of putting and shutting shift their physical locations as a result of the actions, and the adverbs must be properly viewed as adverbs of Result.

Degree adverbs express the degree or extent of a certain quality or state and presuppose an analysis of the grading properties in the semantics of, especially, adjectives. These adverbs either serve to indicate descriptively something about the degree, as in "She was very tall" or indicate the speaker's reaction to the degree, as in "She was surprisingly tall". There is good reason to believe that every language owns a set of descriptive degree adverbs.

The second type of degree adverbs comes from attitude adverbs: remarkably, pitiably, prohibitively, surprisingly and astoundingly, etc. and may be thought of as occupying a midpoint between attitude and descriptive degree adverbs. They show in course of time a tendency of passing from the former to the latter class, because through frequent use in the pre-adjectival position they are apt to lose their meanings of "the speaker's reaction and evaluation" and come to acquire a generally accepted value, whereupon their graduation into descriptive degree adverbs may be said to have been completed.

I do not pretend to understand the selectional properties of adverbs vis-a-vis their co-occurring verbs. In the following I will confine myself to a number of almost obvious observations arrived at, in part, from a small-scale experiment I have conducted. It appears on the surface that degree adverbs would select those and only those adjectives whose grading properties are compatible, in
some sense, or not in conflict with those of degree adverbs. The problem of course is: What are the grading properties for each? Unless we begin to understand what these grading properties are, we can not handle adequately the semantics of degree adverbs.

Observe that different types of adjectives may be qualified by the same degree adverb, as in very intelligent, where intelligence is a mental state, or in very excited, where excitement is a psychological state, or in very tall, where tallness is a physical attribute. The degree or extent which we can easily recognize in these examples is each predicated of different states or qualities along totally different dimensions.

It is clear that adverbs are generally applicable to both an adjective, where appropriate, and its antonym, as in very wise/stupid, absolutely right/wrong and surprisingly tall/short, etc. It follows that degree adverbs must be thought of as having different grading properties from those of adjectives. Absolutely, according to Lakoff (1970), is restricted to occur only with the end points on the same scale and very may occur with the mid-points on such a scale. If this is in fact the case, then absolutely and very together define sets of all adjectives graded in this way along certain dimensions. Absolutely impossible/necessary, but very possible. Thus impossible-possible-necessary constitute a three-term set. Similarly, very and absolutely are in complementary distribution with respect to the following pairs of adjectives:

- angry/furious
- good/wonderful
- interesting/fascinating
Extremely apparently selects differently from either very or absolutely. Of those I polled, all concurred in rejecting extremely enormous/exhausted/wrong/right/acceptable and accepting extremely famished/idiotic/wise/clear/certain. Thus extremely seems to destroy the pattern of the above-mentioned pairs of adjectives arrived at on the basis of the behavior of very and absolutely and makes a re-patterning of the adjectives a necessity. Quite behaves in close unison with very, at least for my pollees, except that all rejected *quite wise.

This is puzzling, since quite intelligent is acceptable to all. Quite has an upward-tending tone and wise is certainly not at the end point on a scale. Totally and completely are almost fully synonymous: *totally/completely hungry/beautiful/tired/tasty/delicious/cheap/expensive/big/wise/short are impossible, though I got conflicting answers on famished/gorgeous/delicious.

With almost participle adjectives are readily accepted: almost famished/exhausted, though not gorgeous/enormous. This suggests that human beings tend to impose no limit on possible beauty and size. It seems that most would accept almost with active predicates: almost certain/clear/acceptable/wrong/right, and reject it to occur with statives: *almost hungry/stupid/cheap/expensive/big (but *almost wise).

While tall, hungry and stupid, etc., are relative, six feel tall, as stupid as John are not, so Mary is almost six feet tall, and Mary is as stupid as John are perfect. In sentences like I am almost hungry/wise/tall again are generally acceptable, as again is thrown in to mark the change of states explicitly.

It is a shade more difficult to tackle the second type of degree adverbs, for they introduce an extra dimension of the speaker's
reaction. It was observed earlier that surprisingly as an attitude adverb is predicated of a fact, as in "Surprisingly, she is tall", and is predicated of a degree, as in "She is surprisingly tall". Clearly a semantic shift accompanies changes in selectional properties: "Surprisingly, she is right/wrong" is sound, whereas "She is surprisingly right/wrong" is rejected by all. It may be that right and wrong must be viewed, after all, as endpoints, since the results of my mini-experiment also reveal that surprisingly and absolutely are completely complementary in their co-occurrence with each of the following adjectives: hungry, famished, tired, exhausted, beautiful, gorgeous, big, good, wonderful, interesting, fascinating, angry, furious, expensive, cheap, wrong, right, acceptable, and short.

The meaning of Mary is surprisingly tall can be obtained from some such paraphrase as the degree to which Mary is tall is surprising. There is, however, no comparable trick with sentences like The wind was blowing at an impossibly high speed, or John ran a mile in a dismally long time. Obviously, these "reactive" adverbs must be understood in their non-literal meanings.

I will now discuss briefly two other classes of adverbs: performative adverbs and adverbs of viewpoint. These adverbs occur both in action and non-action sentences, and when they do, they contribute only indirectly in describing the event, identifiable by the contributions of Actor, Action and Result, in the case of action sentences, and states of affairs, in the case of non-action sentences. These adverbs describe the speaker's role with respect to the event and may be thought of as coming from, as it were, a higher clause;
and the higher clause is not part of the sentence at which the descriptive core of the event may be said to be located.

The class of performative adverbs includes *frankly, bluntly put, honestly, strictly, truthfully, to tell the truth, consequently, as a matter of fact, to quote the time*. Some performative adverbs indicate the speaker's state of mind in performing a speech act, as in "*Frankly, John overslept.*" Some indicate the manner of the action in the performance of a speech act, as in "*Briefly, the facts fail to support the conclusion.*" Some are performatives, as in "*To quote the Times,*" "Kennedy has decided not to run". In (21) the first *honestly* comes from a higher clause and indicates, naturally, the speaker's state of mind.

(21) Honestly, John honestly believed in God.
The second occurrence of honestly is also an adverb of state-of-mind, not of the speaker, but of the subject John in the embedded sentence. The main verb in the higher clause is sneak or its equivalent abstract predicate, as is evidenced in such expressions as honestly sneaking, strictly speaking, and generally speaking, etc.

Performative adverbs may, by an optional movement rule, be moved to the post-subject position, in which case we get ambiguous readings, as in (22).

(22) John honestly believed in God.
The ambiguities in (23) can be accounted for in much the same way:

(23) We still have not solved our problem.
On one reading, *still* is from the lower sentence and (23) means we have not solved our problem yet. In this case, *still* is a time adverb.
On another reading, still comes from the higher clause I still say
and the sentence has the meaning I still say that we have not solved
our problem.

The second class of adverbs is what I will term adverbs of
viewpoint, which semantically are akin to the theme of discourse
and hence usually appear in the beginning of a sentence. This class
includes theoretically, artistically, emotionally, personally,
fundamentally, basically, generally and essentially, etc. Some of these
adverbs indicate precisely the viewpoints around which discourse
revolves, as in "Medically, there are three types of heart murmur".
Some take a vague viewpoint, as in "Basically, the house can withstand
the quakes", or take the speaker's viewpoint, as in personally and
as far as I am concerned.

The last class of adverbs I will touch upon also very briefly
is the class of conjunctive adverbs like again, also, likewise,
similarly, analogously, equally, conversely, yet, consequently,
accordingly and moreover, and so forth. These adverbs are used in
much the same way as conjunctions and some people may prefer to call
some of these, such as again, also, and yet, conjunctions rather
than adverbs.

These adverbs throw a line to some previous statement and mark
the sentence they introduce as being, in relation to the previous
one, parallel in some sense (e.g., likewise, similarly); a contradiction
(on the contrary, yet); a consequence (e.g., consequently, accordingly);
or an amplification (e.g., also, additionally, moreover).

Conjunctive adverbs are not purely conjunctions; they conjoin
sentences and qualify them in a certain way. The semantics of these
adverbs thus must be understood in relation to a wider context than the domain of a single sentence. Similarly, for example, may be viewed as a predicate relating two or more sentences as its arguments, its meaning being to assert the similarity, in some sense, of the two arguments.

Some adverbs contribute only indirectly to the description of events: John came this morning states an event. In John possibly came this morning, the role of possibly is to suggest how the statement is to be understood in relation to a wider context. I will call adverbs like possibly epistemic adverbs. On the other hand, in Surprisingly, John came this morning, the role of surprisingly is to express an external evaluation of the event as a whole, and the sentence as a whole describes a fact: the fact that John came this morning was surprising. Adverbs like surprisingly I will term attitudinal adverbs.

Both epistemic and attitudinal adverbs are generally loosely attached to the sentences. They are used to orient the hearer towards the statement in which they occur and explain the hearer how the statement is to be taken. These are adverbs like possibly, probably, necessarily, undoubtedly, certainly, clearly, luckily, supposedly, admittedly, presumably, unfortunately, conceivably, paradoxically, naturally, interestingly, wisely, understandably, and so forth. One of the characteristics of these adverbs is that they can be positioned quite freely in a sentence without changing their meaning. Thus Unfortunately, he is ill means essentially (i.e., cognitively) the same as He is ill, unfortunately or He is, unfortunately, ill.
Epistemic and attitudinal adverbs modulate the whole statement by giving an explanation as to how the sentences are to be understood. The ways in which they do this may be thought of as being aids to placing the statements against evidential, logical, emotional, moral and intellectual backgrounds. Thus adverbs like luckily, happily, and unfortunately, etc., suggest the speaker's emotional attitudes to the statement he makes; conceivably, presumably, admittedly, supposedly, and understandably, etc., indicate the ways in which to take the statement in relation to a wider context; possibly, apparently, undoubtedly, necessarily, certainly, obviously and clearly indicate how much reliability, logical or evidential, is to be ascribed to the statement; wisely, paradoxically and inconsistently may be used to indicate the speaker's attitudes in relation to an intellectual context.

Manner adverbs may contribute to the interpretation of sentences as carrying the ideas of facts or states of affairs as well. The door stood open reports an event, but The door stood carelessly open has the meaning that the fact that the door was left open was indicative of the fact that someone was careless. Carelessly in this sentence thus acts like an attitudinal adverb. Some sentences describe events, some report facts. And facts and events are different entities. It is events, and not facts, that occur, take place, begin, last, and end. But only facts can be stated, denied, surprising or obvious.

Manner adverbs also play a critical role in what Lyons (1968) calls the "process-oriented" construction. The construction and the role manner adverbs play can be exemplified by the following two sentences.
(24) The paper xeroxed well.
(25) The books sold quickly.

(24) seems to imply that the good quality of xeroxing has more to do with the quality of the paper; (25) seems to suggest that it was by virtue of the quality of the book that they were quickly disposed of. On the other hand, the "agent-oriented" constructions like

(26) John xeroxed the paper well.
(27) John sold the books quickly.

certainly have the interpretation that John was responsible for the quality of the xerox and the rapidity with which the books were sold. In case-grammatical terms, these sentences result from subjectivizing the Objective case of the underlying structures. Roughly speaking, if the referent of the Objective NP is relevant, along the dimension specified by the manner adverbs, to the action identified by the verb, then it may be subjectivized. The subjectivization typically requires the accompaniment of manner or degree adverbs. Other similar examples are (28) through (33).

(28) The studio records well.
(29) The track runs well.
(31) John photographs well.
(32) It will install securely.
(33) These crates don't ship conveniently.

Whether or not a verb may figure in this kind of construction is a function of the semantic content of that verb. It appears that a pure motion verb is not semantically suitable, though I have no idea
just what kind of verbs can actually occur in it. Note these examples: It carries well; It moves well; but *It takes well; *It brings well.

There are sentences like John shyly handed it to her and John returned the book anonymously, in which the adverbs shyly and anonymously are predicated of neither action, fact, nor proposition: John was shy as he handed it to her; John remained anonymous when he returned the book. It appears that we also have to bring in and speak about the idea of the state of some participant in event sentences.

Note that so far I have not spoken about fact sentences, for there is no such class of sentences totally distinguishable from event sentences. I am merely saying that some event sentences express a fact because of the semantic contributions of attitude adverbs.

In summary, we have discussed both action and, briefly, non-action sentences. Most of the categories of adverbs we have identified and characterized in some detail may occur in either of the two classes of sentences. Furthermore, whether an adverb belongs in this or that category is defined in terms, not of types, but of tokens of occurrence, as can be seen from the status of the adverb surprisingly. The categories of adverbs we have arrived at can be conveniently summarized as follows:

I. What the speaker does
   A. Speaker's attitude (e.g., Surprisingly, he is ill.)
   B. Speaker's state of mind (e.g., Frankly, Mary is a bore.)
   C. Choice of theme (e.g., Theoretically, cancer is curable.)
   D. Manner of action identified by speech act verbs (e.g., Briefly, the claim is false.)
E. Performatives: consequently, to quote the Times.

F. Epistemic qualification (e.g., John is probably ill.)

II. Event specifications
   1. descriptive: time and locative adverbs
   2. evaluative: wisely, foolishly (e.g., Foolishly, John called Mary.)

A. Participant:
   1. state: anonymously (e.g., He returned the book anonymously.)
   2. state of mind (with respect to an Event)
      Actor: carefully, intentionally
      Patient: (there is no state-of-mind adverb in English which predicates only of patient)

B. Event type: manner adverbs like slowly, rapidly, with a limp

C. Result:
   Legibly (e.g., John wrote his name legibly.)
   temporarily (e.g., He removed his hat temporarily.)
   in the garbage can (e.g., He put the bottle in the garbage can.)

III. Degree:
   A. descriptive: very (e.g., Mary is very tall.)
   B. reactive: surprisingly (e.g., Mary is surprisingly tall.)
CHAPTER II

SURFACE PHENOMENA OF ADVERBS

From the viewpoint of their functioning in linguistic behavior, adverbs may be described as the principal ways in which the language user characterizes the conditions and circumstances; the hows and wherefores of actions and events: I foolishly made the reservation, His two brothers died violently, John returned the book anonymously. As these examples indicate, the conditions and circumstances of the events and actions characterized by the verbs are adverbially expressed. However, as one might expect, adverbial and verbal expressions have decided points of contact. In our linguistic reactions to the world, we are no more able to keep our references to the conditions and circumstances pure than we can keep actions and events absolutely distinct. The condition of an event is not always an absolutely different phenomenon from the action itself. Accordingly, such actions will sometimes require verbal and sometimes adverbial expressions. In a sentence like Mary was nervously anxious, it is difficult to say whether Mary was anxious because she was nervous or nervous because she was anxious, and so we may conclude that she was both nervous and anxious.

It will be recalled that an adverb is defined semantically as a function of a function, and that we have identified and characterized
a number of semantic classes of adverbs. Of these, manner adverbs are used to characterize modes of action; state-of-mind adverbs to impute mental states to the actor; resultative adverbs to describe aspects of the result of an event; epistemic adverbs to tell us how statements are to be understood; attitudinal adverbs to express the speaker's external evaluation of facts or an event as a whole; performative adverbs like frankly also impute states of mind, not to the actor, but to the speaker. The problem is whether these various sorts of adverbs can be represented in ways which capture the notion that an adverb is a function of a function. As a first approximation, to be further elaborated upon in chapter three, we can at least try the following:

Attitudinal Adverbs: $\text{Adv} (S, \text{Me})$

State-of-mind Adverbs: $\text{Adv} (X, S[F(X, \ldots)]_I)$

Performative Adverbs: $\text{Adv} (I, \text{Speak} (I, S))$

Epistemic Adverbs: $\text{Adv} (S)$

Resultative Adverbs: $\text{Res} (S_1, S_2)$

Where $S$ expresses a fact or an event in the case of attitude adverbs; a statement in the case of performative adverbs, and a state of affairs in the case of epistemic adverbs. $\text{Res} (S_1, S_2)$ expresses the idea that $S_1$ is the resulting state of $S_2$, so $S_2$ must be understood as indicating an event.

It would prove to be a highly valuable project to take on a study of the ways in which these semantic functions are realized in surface structure across languages in the world. However, in part because my access to the relevant data, direct or indirect, is
unfortunately limited and in part because the nature of the data
needed calls for a prior semantic analysis of adverbs, the object of
the rest of this chapter will be simply to survey surface phenomena
of some classes of adverbs from a small number of languages for the
ways in which adverbial information is packed into linguistic
expressions.

The function of adverbs, such as that of manner adverbs, in
"developing" a predicate often calls for a distinction in morphological
shape. Thus most adverbs of manner in English and certain other
languages are distinct from, but morphologically related to adjectives:
(e.g., careful, carefully). In this way the attribute indicated by
the adjective is made appropriate to characterize a verb and we thus
observe that the attribute idea is still present. The difference
between, for example, careless driving and drive carefully is primarily
due to the requirements of grammatical environments and to the ways
in which we wish to fit this idea into the sentence.

There are a number of syntactic devices with which to express
adverbial notions; especially useful are adverbs, prepositional
phrases, postpositional phrases, de-adverbial adjectives and modal
nouns.¹ In many languages functional shift exists between manner adverbs

¹It is of interest to note that the usual deep cases can be
realized not just as noun phrases, but also adverbially. I consider
sentences like the following to be merely surface options that English
offers in expressing the agentive, neutral, instrumental and locative
cases respectively. Agentive: The matter was handled administratively;
Neutral: The sentence is interpreted semantically; Instrumental: The
errors were removed mechanically; Locative: The jobless rate was
nationally up 5% last month.
and adjectives. Thus in Australian languages, as Capell (1938) tells us, there is no system for forming adverbs from other parts of speech. In Kokoyimidir, "The natives often rely on placing adjectives immediately before verbs" (Capell, p. 11). Unfortunately, Capell does not make himself clear as to what grammatical functions the adjective plays when occurring after the verb. In Turkish, almost any adjective may serve as an adverb and modify a verb (Lewis (1967), p. 193), e.g. - *iyi* "good", *iyi calisir"he works well"; *acik* "open", *acik knusalim" let us speak openly"; *yavas* "slow", *yavas git"go slowly". To a lesser extent, functional shift of this sort exists in inflecting languages as well. In English, a good number of nouns have adverbial use, especially those that deal with space, time, distance, measure and weight. Also, prepositions such as *in*, *on*, *under*, *over*, etc., appear in the characteristic adverbial position at the end of a sentence, as in *The drowning man came under/He bought the cat in*, etc.

Many languages also make use of the reduplication of adjectives or substantives to form adverbs. Turkish (Lewis (1967), p. 197) has a host of reduplicative adverbial expressions like

\[ (1) \text{ yavas yavas yuruyordul "slow-slow-we were walking",} \]

\[ \text{ i.e., "we were walking slowly"} \]

\[ \text{hikayeyi guzel guzel anlatti "story-beautiful-beautiful-he told", i.e., "he told the story beautifully"} \]

\[ \text{kapi kanı dolastim "I wandered (from) door (to) door"} \]

\[ \text{efendi efendi davrandi "gentlemen-gentlemen-he behaved",} \]

\[ \text{i.e., "he behaved (in a) gentlemanly way"} \]
In Maori, a Polynesian language, apparently adverbs are not derived from adjectives, but are, in traditional Maori grammar, considered as particles, along with articles and conjunctions. According to Biggs ([1969], p. 69), manner particles are a class of postposed particles, each of which qualifies the meaning of the verb with some such meaning as is expressed in English by words like very (for rawa), immediately (for tonu), freely (for noa), secretly (for puku), and perhaps (for pea) etc.

Elsewhere Biggs stated that each Maori sentence consists of a nucleus or central portion which contains one or more bases carrying the lexical meaning of the sentence, and peripheral to the sentence are the preposed and postposed particles which add the grammatical meaning of the sentence (p. 34). Since adverbs are considered as particles and particles are more or less peripheral elements in sentences, we seem to have in Maori a very strange phenomenon. Are state-of-mind adverbs such as carefully and evaluative adverbs like foolishly all manner particles and are not derived from adjectives? If this is true, it would mean, on the one hand, that the Maori counterpart of John carefully opened the door can not be something that would look like the English sentence since carefully can certainly be a base (cf. John is a careful man); it can not be something like John was careful to open the door either, since that means that the particle carefully is derivable from the base careful.

A strikingly similar phenomenon obtains in Aranda, an Australian language. Here the so-called manner particles precede the verbs they qualify. Of theoretical interest are cases in which Aranda verbs are used to convey what in English is achieved by modal verbs, or
by epistemic adverbs:

(2) Jinga irbaltala lama "I can go—literally, I ably go"
    Jinga janna ekurauna lama "I can not go to him."
    literally, "I impossibly go to him"

Impossibly in English can not be an epistemic adverb and since the
modals are adverbial notions, the Aranda examples are not surprising.

In Eskimo (Hinz (1944)) and Tlingit (Boas (1917)), it appears that
adverbial notions are either expressed adjectivally as in (3), or by
incorporating bound forms to verbs as suffixes, as in (4):

(3) patagamik "quick", patagamik aye "go quickly"
    pulingitak "often", pulingitak tailartok "he came often"
    kisianik "always", kisiantik kuyalarto "he is always
    thankful"
    itlmikun "aimless", itlmikun utlaga "he went to him
    aimlessly"

(4) -luakartok "right, correctly", kavartok "sleeps"
    kavaluakartok "sleeps well"
    -tsorulagtok "badly", pick "does", pitshorulagtok
    "does wrong"

The examples in (4) are verbal suffixes, since they do not occur
independently. What is curious about these Eskimo suffixes is that
they seem to be generally morphologically unrelated to adjectives
acting as predicates. If Eskimo did not have the morphosyntactic
process as exhibited in (3), it would be a language much like Maori
and Aranda. In the first process, there is no incorporation; in the
second, the incorporation of adverbs is obligatory. Similar processes
seem to be also operative on the category adjectives, according to Hinz.

A very common way of forming adverbs is, naturally, the attachment of suffixes to adjectives or nouns. In Turkish, the suffix -ce makes adverbs from adjectives or nouns. With nouns, -ce means "on the part of" or corresponds to the English -wise: güzel "beautiful", güzelce "beautifully"; bazılar "some people", bazılarice "on the part of some people".

Of the adverb-forming suffixes in Old English, -e, -linga, -longa (as still seen in sidelong, headlong, etc.) and -lice, the only surviving form is -ly, which developed from -lice. Through the loss of -e, many adverbs such as fast and hard have identical forms with the adjectives.

There is no adverbial suffix in Malay comparable to -ce in Turkish or -ly in English. A descriptive adjective may be used as an adverb of manner without change of form, as in (5), or by putting the preposition dengan before an adjective, as in (6) (Lewis (1968), pp. 90-96).

(5) Narus sungai itu deras "current-river-the-swift", i.e., "the current of the river is swift"
   Kereta berjalan deras "car-travels-swift", i.e., "the car travels swiftly"
   Tali ini kuat "rope-this-strong", i.e., "this rope is strong"
   Tarek kual "pull hard"

(6) Dengan senang sahaja dia chabut bajitu "with-easy-only-he-pluck-out-wedge-the", i.e., "he pulled out the wedge quite easily"
Dia buat dengan sengja "he-do-with-purpose", i.e.,
"he is doing it purposely"

Arabic lacks adverb-forming suffixes entirely. The commonest
way of expressing an adverbial concept is to use the corresponding
adjectives in the accusative case, -an, commonly called the adverbial
accusative in Arabic grammars (Bateson (1967)). Thus:

(7) rakada sari an "he ran swiftly", lit. "he ran swift"
qadima bati' an "he approaches slowly", lit. "he
approaches slow"

Analogously, He departed quickly is expressed by some such phrasing
as He made quick the going, where both the predicate quick and the
deverbal noun going are in the accusative. One may also use the
deverbal noun qualified by an adjective to form an absolute accusative,
as the following examples show:

(8) rakada rakdan sari an "he ran a running swift", i.e.,
"he ran swiftly"
qadima qaduman bati' an "he approaches an approach
slow", i.e., "he approaches slowly"
kataba kitabatan jamilatan "he wrote a writing good",
i.e., "he wrote well"

These Arabic sentences suggest the possibility that manner adverbs can
in fact be considered as predicates taking an argument that represents
an action nominal. It will be interesting to compare whether
Australian languages, which also lack adverb-forming suffixes have
constructions which can be so analyzed. And if so, are all suffixless
languages like Arabic? Unfortunately, Carell, again, is not helpful
on this point.
In Turkish, Arabic substantives with the Arabic accusative ending -an are also used as adverbs, but -an in Turkish is taken as an adverbial suffix comparable to the native -ce. We read in Lewis (1967) that it is fairly common practice among people of limited education to coin analogous adverbs from non-Arabic words, such as kulturen "culturally" for which the native formation would be kulturce or kultur bakimindan "from the viewpoint of culture".

Adverbs in Japanese are formed by inflecting adjectives for adverbial ending -ku (9), or by attaching the general dative case marker -ni to substantives (10), or by a verbal gerund (11).

(9) hayai "fast, quick", hayaku hashirinasai "please run quickly"

(10) issyoni kaku "write together"
     kireini kaku "to write beautifully"

(11) isogu "(be in a) hurry", isoide kaku "to write in a hurry"

One must not deduce from these random examples that -ku is used to characterize the action in progress and -ni to the result of an action, since we also get sentences like the following:

(12) takaku uru "to sell at a high price"
     kore o hazukashiku omoo "fell ashamed at this"

In Mandarin, the manner adverb-forming suffix is -de. If the adjective in question is monosyllabic, it undergoes reduplication before attaching the -de. For disyllabic words, reduplication is optional. Corresponding to the use of manner adverbs in English is the employment of the so-called resulative constructions in which the adjective predicate follows the nominalizer -de, a homophone of
the suffix -de, and anything that precedes -de may be looked upon as a clause.

(13) Ta pāo de kuài "his running is fast", lit. "he runs de fast"

(14) Ta shuō de bù tuì "what he said was incorrect", lit. "he say de not correct"

What is unusual about the use of -de to form manner adverbs is that it is used only on the conditions that the action one is interested in is actually going on at the time of the speech act and, furthermore, the sentence in which the manner adverb appears is a command or request, as in (15) or (16).

(15) Nǐ kuāikuài de pāo "you run quickli(er)"

(16) Wōmen kuāikuài de pāo "let us run quickli(er)"

Watching from the viewing stand a track star running a fast mine, for example, one is likely to utter (13) instead of (17).

(17) Ta kuāikuài de pāo

As it stands, (17), which is neither a command nor a request, is incomplete and semantically ill-formed. Since in (18) slowly is, according to my informants, taken as describing the result of the action of running,

(18) The first few laps were run very slowly.

We may say that English manner adverbs express what is jointly achieved by predicative adjectives in the resultative construction and by the use of manner adverbs formed from -de.

Finnish, well-known for its rich inventory of surface cases, forms manner adverbs from adjectives by means of the suffixes -sti.
kkain, lti, nne, ten, etc., but the manner of an action can also be indicated by the partitive or allative of the adjective (Aaltio (1966) pp. 92-95).

Of the three classes of action-characterizing adverbs we have identified in chapter one, the adverbs which characterize the ways in which actions are carried out, i.e., the manner adverbs, are clearly much more intimately connected with the description of action itself than either the state-of-mind adverbs or the resultative adverbs are with the description of action. Given this observation, it is only natural to expect that what is expressed by means of a separate manner adverb in English may be achieved in another language by suffixation to the verb. These suffixes must be manner adverbs-forming suffixes. I conjecture that in no language are there suffixes which can be attached to verbs to impute certain state-of-mind or to describe aspects of result of an action, but which can not be attached to verbs to express the idea of manner. It is also my conjecture that if an adverb-forming suffix in any language can be used to form adverbs which are expressive of both the idea of the state of mind of the actor and the idea of the result of the action, then that suffix can also be used to describe the way in which the action is carried out. The converse is, of course, not true. I would like to offer this implicational statement as a candidate for a linguistic universal. Whether it is in fact a linguistic universal or not is an empirical question and can be easily falsified.

In Luganda (Chesswas (1963), p. 94), addition of a so-called augmentative suffix to a verb indicates that which is expressed by
an English manner or degree adverb:

(19) okumala "to finish", okumaliriza "to finish completely"
okutonnya "to rain", okutonnyerera "to rain incessantly"

A verb stem with the prefix bu- and the suffix -i which follows the main verb lessens the force of the main verb:

(20) atuula butuuzzi "he merely sits"
bamukybye bukubi "they just hit him (nothing else)"

If the infinitive follows the main verb, extra emphasis on the action of the verb results:

(21) alimbye nokalimba "in addition he told lies"
bouna balifa nokafa "everyone will assuredly die"

In Turkish the gerundial form of the verb often is used to express the accompanying circumstance, which in English would be achieved by the use of a manner adverb. The -e gerund indicates repeated action contemporaneous with that of the main verb.

(22) calakalem yazmak "to write busily", lit. "throwing-pen-write"
calakasil yemek "to gobble greedily", lit. "throwing-spoon eat"
calakurek acilmak "to row away at full speed", lit. "throwing-oar recede"

The -erek gerund denotes a single act or continued activity contemporaneous with or slightly prior to the main verb (Lewis (1967), pp. 176-178).

(23) gulerek cevap verdi "laughingly he answered"
kosarak geldi "he came running", lit. "running he came"
bunu bilerek yaptın "knowingly you did this or you did this deliberately", lit. "this knowing you did"

English's lack of a construction like He came runningly or runningly he came is, presumably, due to the fact that runningly, unlike state-of-mind adverbs such as smilingly and laughingly only pertains to or characterizes the mode or the manner in which the action of coming is carried out, failing at the same time to tell us about the mental state of the agent in ways state-of-mind adverbs do. Sometimes, therefore, when some attribute about the agent of the action is to be revealed, it is optional to use either a state-of-mind adverb or simply a participle. Laughingly he answered means just the same as Laughing, he answered or He, laughingly, answered. The acts of answering and laughing in this case are concurrent. When the mode of answering by way of laughing is intended, He answered laughing must be used.

Of all the various types of adverbs, the manner adverbs in the sense in which the term is used in traditional grammars are the class whose linguistic forms vary the most from language to language. There is no single language which consistently marks this class of adverbs with a special case marker. The reason, I suggest, is that these adverbs are sometimes 2-place, sometimes 1-place predicates. Forms used to express temporal and spatial ideas are, on the other hand, when compared with manner adverbs, much easier to comprehend.

It is well known that much of the vocabulary in any language for characterizing spatial relations is duplicated in temporal relations. Thus in Finnish, according to Aaltio (1966), locatives
and time adverbs are marked by the same case suffixes: essive, elative, illative and adessive. The same sets of prepositions and postpositions are used equally to describe spatial and temporal relations. Moreover, it is safe to assume that the vocabulary that describes space, distance, measure, and time can be used either nominally or adverbially.

Most languages inflect differently or use different case markers for location in, motion toward and motion away from, etc. Naturally, many interesting insights into the ways in which various languages distinguish and conceptualize spatial and temporal orientations can not be attained by simple inspection of surface morphological inflections or other markers. Thus when Boas (1922) states that many American Indian languages have a stronger sense of localization and add in addition to the fundamental idea of position near one of the three persons also reference to the concept of visibility versus invisibility in the use of demonstrative pronouns, what he must have in mind is that these languages simply have four deictic categories to express the idea of locality relative to the speaker.

Time is indicated either by the time indicators, as when we say "at 3 p.m., in 1970, on Sunday" or by the so-called "tenses". But tenses give only a poor approximation of time and the precise time is often effected by means of time indicators. Tense-distinction is often considered the main feature characteristic of verbs, but there are languages whose verbs do not distinguish tenses, and there are languages whose tense-distinction is made on the constituent other than verbs. It is possible to imagine a language in which the object indicated by the noun we are speaking about belongs in the present, the past, or the future time. In such a language the words for steady date, fiancee,
bride, wife, window and the words for prince, king would simply be different tense-forms of the same nominal roots. A feeble attempt to approximate tense distinctions by means of nouns is seen in the use of the prefix ex- (e.g., ex-husband, ex-convict), sometime (e.g., a sometime leader of the group), the late (e.g., the late President), prospective (e.g., prospective client), and to be (e.g., our son-in-law to-be).

In Eskimo, according to Jespersen (1924), p. 280), we find that puyok "smoke" has a preterit puyuthluk "what has been smoke", and a future puyoqkak "what will become smoke", a name for gunpowder. In Hausa (Hodge (1963), p. 114) pronouns are inflected, instead of verbs, nouns or adjectives, for the purpose of marking time distinctions.

Go, The spear hit the bull would become The spear it-past hit the bull and The chief was furious would become The chief he-past was furious.

Whorf (1956) claims that "after long and careful study and analysis, the Hopi language is seen to contain no words, grammatical forms, constructions or expressions that refer directly to what we call 'time', or to past, present, or future, or to enduring or lastinfg, or that refer to space in such a way as to exclude that element of extension or existence that we call 'time'. Hence, the Hopi language contains no reference to 'time', either explicit or implicit" (pp. 57-58), but in the next sentence he goes on to say "at the same time, the Hopi language is capable of accounting for and describing correctly, in a pragmatic or operational sense, all observable phenomena of the universe."

There are differences between temporal and spatial relations. In John is earlier than Bill we do not have to specify some third term
from which John and Bill are judged, as we do with John is to the right of Bill. There are three points of time in a speech event. We speak of events as becoming past, present and future, but not of locations. Yet place can be occupied or deserted, but not time. Time can fly and can be spent, but not place.

One final observation before I leave the topic of time and locative adverbs: it is useful to distinguish between semi-temporal and regular temporal expressions. By semi-temporal expressions I mean those expressions dealing with habitual, continuative, transitory, frequentative, and completive aspects of the action associated with the verb. Regular temporal expressions are those that are not semi-temporal. The distinction between completive and non-completive verbs affects the meaning of the second particle in Romance languages and thus has influence on the time-meaning of passive constructions. Some examples are given in Jespersen ((1928), p. 272). The distinction between continuative and transitory aspects of action is achieved in English between the so-called 'expanded' and unexpanded tenses. The distinction between frequentive or repetitive action and action which takes place only once is either effected by separate time adverbs like frequently, habitually or by suffixes attached to verbs, in which case we speak of frequentative verbs, or by verbs and their complements, as in They kicked the dog to death.

Many American Indian languages develop complex mechanisms in the form of prefixes and infixes, etc., in expressing semi-temporal situations. These affixes are normally incorporated into the verbal stem and form a single unit. The aspectual system found in Slavic
languages is also familiar in this regard. The usefulness of the distinction between semi-temporal and regular and regular temporal expressions lies in the fact that active verbs in probably all of the languages, incorporate just the semi-temporal concepts and none of the non-semi-temporal concepts into their semantics. Thus where one language makes use of a temporal affix, another language simply gets along with a full time-adverb and still another language may just use a verb with inherent temporal notions.

Excursus on the Use of English Adverbs

The ease with which English sentential adverbs alternate with their adjectival forms in many sentences is remarkable. Thus Mary was decidedly an agreeable person means just the same as Mary was a decidedly agreeable person or Mary was a person of decided agreeableness. He paid John a visit daily and He paid a daily visit to John are completely synonymous. Syntactically, this may be described as a process of incorporating a higher predicate into a lower (i.e., the main) predicate. The direction of incorporation is predictable, since the meaning of a higher predicate, i.e., adverb, is incomplete without the presence of an ordinary predicate, i.e., verbs and adjectives, so that a higher predicate suggests quality or state of secondary importance or that it is revealed only accidentally by the action expressed by the verb or the quality and state expressed by the adjective. If this is so, then we are in a position to state that the adverbial incorporation phenomenon observed generally in Eskimo and many other Indian languages is a surface obligatory process,
with the added requirement that the result of linearization must be
that the whole chunk of concepts so incorporated is a morphologically
single unit, while surface incorporation in English is merely an
optional process.

Note that this surface incorporation is not restricted just to
sentential adverbs, however. **Basically** and **formally**, which I take to
be adverbs of viewpoint, can be incorporated in the same way.
**Basically I agree with you** means that I am in basic agreement with
you; **Formally, it is necessary** means **It is a formal necessity**, with
no loss in the content. **Theoretically**, also an adverb of viewpoint,
can be incorporated from, for instance, **Theoretically, fully automatic
translation is possible** into **Fully automatic translation is a
thoretical possibility**.

Whatever the correct analysis of adverbs of viewpoint is, it is
clear, that they must be VP adverbs in the clause in which they appear.
But other VP adverbs such as manner adverbs and degree adverbs and
sentence adverbs such as evaluative and attitudinal can not be
incorporated in the same way. **Performative adverbs**, which are VP
adverbs in the performative clause, also fail to be incorporated this
way. **Honestly, Mary is a bore** does not become **Mary is an honest bore**;
**Strictly, John is a historian**, if incorporated, produces the non-
sensical **He is a strict historian**. **He, surprisingly, paid us a visit**, if incorporated, yields a sentence with different meaning: **He paid us a surprising visit**. I do not know whether there are interesting
general conditions which govern the possibility, or lack thereof, of
incorporation. Observe also that in each case, where incorporation goes
through, be it a sentential or a VP adverb, the adverb invariably
incorporates itself with the main predicate, suggesting that, after all, the adverb goes most naturally with the verb.

Sometimes a descriptive adverb in English has the full force of a clause expressing the reason or cause of an action or state; John sat indolently quiet is equivalent in meaning to John sat quiet because he was indolent, or John, being indolent, sat quietly. Sometimes it is not clear whether a clause is in evidence and can best consider the adverb as having a conjunctive function, as in Mary was nervously anxious.

The dual role of the adverb just mentioned is especially clear when it is positioned before the main verb. In Mary, blushingly, returned his greetings, blushingly can not possibly characterize Mary's way of nodding her head, but tells us that she blushed as she did so. The adverb, therefore, expresses the accompanying circumstance under which the event associated with the rest of the sentence takes place.

Other similar examples:

(24) She stood up tremulously.
(25) He sat miserably in a corner.
(26) He boasted triumphantly.

The tendency to use adverbs to characterize the subject of the sentence and, only incidentally, the verb is carried out much further in English, as in (27)-(29).

(27) John stood thoughtfully before the fire.
(28) He would walk solitarily in the fields.
(29) He stretched out his hand silently.

Here the adverbs can not be said to reveal the way in which the agent stands, walks, or stretches out his hand, because thoughtfulness.
silence, and solitariness can not be shown by the manner of walking, standing, and stretching out of hands. Note that sentence (27) may be paraphrased by (30) and a sentence like (31) may be paraphrased as (32).

(30) John looked thoughtful as he stood before the fire.
(31) John foolishly did not call Mary.
(32) John was foolish in that he did not call Mary.

Now it is clear that (30) differs from (32) in one important respect. The first clause in (30) describes the accompanying circumstances under which the event expressed by the second clause takes place. In (32), the second clause expresses the reason or cause for the evaluation given in the first clause. Suppose we take (30) and (32) as two paradigm cases and ask what adverbs may participate in the first clauses in either (30) to describe an accompanying circumstance, or in (32) to give an evaluation. It may be expected that, given the semantic difference just alluded to, the two sets of participating adverbs must be mutually exclusive. For example, thoughtfully and foolishly seem to be exclusive of each other. Neither may occur in both paradigms. My search produces the following list as being able to occur only in the first paradigm: thoughtfully, silently, solitarily, hopelessly, dejectedly, blushingly, anonymously, etc.

These adverbs I have referred to as adverbs which express participant's state. As is expected, only evaluative adverbs may occur in the second paradigm: foolishly, wisely, regretfully, naively, wickedly, kindly, cruelly (as in He cruelly refused to cooperate) and selfishly (as in John selfishly took away all the supply) etc. These adverbs
evaluate actor's participation in events and may be said to be action-oriented. There are a number of adverbs which I hesitate to group with one paradigm or the other. For example (33) seems to be subject to the two interpretations exemplified by the two paradigms.

(33) John gallantly escorted Mary home.
CHAPTER THREE

SYNTACTIC RECONSTRUCTION OF THE SEMANTIC PROPERTIES OF ADVERBS

Epistemic Adverbs

The object of this chapter is to suggest ways grammatical theory provide for reconstructing semantic properties of adverbs. I will show that manner and degree adverbs cannot be adequately handled in current grammatical theory which recognizes only such categories as Noun, Verb, Noun Phrase and Sentence in the semantic base.

I have suggested that an adverb can be defined semantically as a function and that an epistemic adverb, in relation to the sentence in which it appears, may be represented in terms of functional notations as (1):

(1) Adv (S)

where S represents an embedded sentence expressing a 'claim' or a proposition and the effect of the epistemic adverb is to assign a degree of likelihood to the proposition. (1) may also be converted into a tree diagram such as (2):

(2)

\[
\begin{array}{c}
  S \\
  \quad V \\
  \quad | \\
  \quad Adv \\
  \quad | \\
  \quad NP \\
  \quad | \\
  \quad S
\end{array}
\]

A variety of syntactic arguments have been given by Schreiber (1970)
for showing that sentences containing epistemic adverbs must have an underlying structure as shown in (2). I reproduce two such arguments below.

The first argument has to do with the synonymy of sentences such as (3).

(3) a. John is possibly ill.
   b. It is possible that John is ill.
   c. That John is ill is possible.

If the sentences in (3) are derived from the same underlying structure, we thereby account for the synonymy of these sentences. In general, epistemic adverbs can occur in these three environments and we may look upon (3) as the paradigm for epistemic adverbs. Now consider (4).

(4) a. It is possibly true that John is ill.
   b. *It is possible that it is true that John is ill.
   c. *That it is true that John is ill is possible.
   d. That John is ill is possibly true.

(4b) and (4c) are odd, for they first endorse the truth of that which is expressed in the embedded clause but then refrain from endorsing it in the higher clause. There is no semantic difference between (4a) and (4d). (4a) differs from (3a) in meaning, however. (3a) answers the question: What happens to John? (4a) is likely to be an answer to Is it true that John is ill? Possibly is free in (3a), but not so in (4a), since (5) is impossible:

(5) *Possibly it is true that John is ill.

Is there a difference in the scope of the two possibly's in (4a) and (3a)? I think not. For if we replace true with acceptable, the same
paradigm obtains for possibly:

(6) a. It is possibly acceptable that the date is postponed.
    b. It is possible that it is acceptable that the date is postponed.
    c. That it is acceptable that the date is postponed is possible.

The second argument Schreiber offered is concerned with the imperative construction. The fact that an imperative sentence like (7),

(7) *Possibly, go to the party.

in which epistemic adverbs (what Schreiber preferred to term modal adverbs) may not occur can be explained naturally from the total impossibility of an appropriate underlying structure, since imperatives require an underlying you as subject; but in (2) the underlying subject is an embedded sentence. This argument can be generalized so that it appears to be always true that any predicate which takes a sentence as its only argument is a stative predicate and consequently can not occur in imperatives. Modal auxiliaries and statives like seem and likely have been shown by many to have exactly the underlying structures like that in (2). But sentences in which time adverbs appear can be shown also to have underlying structures like (7), and yet (8) is perfect.

(8) Go to the party this evening.

The difference between time adverbs as predicators and epistemic adverb modals and statives as predicators is that the former predicate events of their arguments; the latter predicate states of affairs of their arguments. It appears that we have to distinguish two sorts of one-place predicates and that only those which predicate events of
their arguments are capable of participating in imperative constructions.

States of affairs can not be persuaded or commanded. It follows that (1) can not be embedded as object of action verbs like persuade and command. The impossibility of (9) is thus accounted for.

(9) *We persuaded John to possibly go to the party.

Attitudinal Adverbs

Attitudinal adverbs are, it will be recalled, adverbs like surprisingly in "Surprisingly, John went to the Party". These adverbs express the speaker's external evaluation of facts and have been represented as

(10) Adv (S, to me)

to capture the idea that attitudinal adverbs, like other adverbs, is a function of a function. In (10), S represents a fact and to me expresses the role of the speaker with respect to the fact. The question now is to show the necessity for talking about facts, and the speaker's role in describing certain syntactic phenomena.

Vendler (1967) has ably marshalled linguistic evidence to show that facts are a distinct species of their own, to be distinguished from events and states of affairs: it is unnecessary to dwell further on the distinction here. Suffice it to say that, for the adverbs we are interested in at the moment, attitudinal adverbs presuppose the truth of S in (7), whereas epistemic adverbs lack such a presupposition, but offer some measure of likelihood to S in (1).

Note that the classes of evaluative, attitudinal, and reactive adverbs share one feature in common. That is, they all contain the idea of the speaker's evaluation, in some sense. That semantic
commonality is also reflected in their common syntactic characteristic in failing to occur in interrogative sentences.

(11) Wisely John did not go to the party.
(12) *Did John wisely not go to the party?
(13) Surprisingly, Mary was a typist.
(14) *Was surprisingly Mary a typist?
(15) Mary is pitiably small.
(16) *Is Mary pitiably small?

Semantically the oddness of these sentences can be accounted for by the observation that adverbialization has the effect of incorporating speaker's evaluations into the semantics of adverbs, and since it is ordinarily odd to ask oneself for confirmation of one's own evaluation, (12), (14) and (16) are consequently odd. In terms of tree representation, they can be roughly pictured as having the following common structure:

(17)  
    S  
        / \  
       V NP  NP  
          |    |  
        Adv  to me

The adverb-formation rule may be said to require the deletion of to me, which accounts for the synonymy between, for example, (13) and a sentence like It is surprising to me that Mary was a typist. The deep structure, in standard analysis, for interrogative sentences consists of a higher sentence which specifies a subject, which is the speaker, doing the interrogating, and an abstract verb [ask]. One of the conditions on the question transformation is that the subject of the higher clause and that of the embedded clause may not be identical. From (17), it is clear that the condition can not be met and hence sentences (12), (14) and (16) are ill-formed.
With these three classes of adverbs, grammaticality judgments among native speakers are, as expected, uniform, but the interrogative data on epistemic adverbs are somewhat murky. Katz and Postal ((1964), p. 87) suggest that epistemic adverbs do not occur in interrogative sentences; Schreiber ((1970), p. 88) insists, on the other hand, that they can, though only medially, and are subject to ambiguous interpretation.

(18) Is John possibly a scholar?

Either a scholar or the adverb itself may be questioned, in which case, it is synonymous to (19).

(19) Is it possible that John is a scholar?

There is yet another syntactic phenomenon that calls for some explanation. The data in the following are typical of attitudinal adverbs:

(20) a. It is fortunate that Mary is a typist.
    b. Fortunately, Mary is a typist.

(21) a. It is fortunate that Mary is a typist?
    b. *Is fortunately Mary a typist?

Postulating an underlying structure like (19) does not explain the data: (a) and (b) in (20) are synonymous. If they are derived from the same source, then (21a) and (21b) would be equally well-formed. But they are not. Note that simply saying that attitudinal adverbs must be blocked from the rule for forming adverbs from underlying predicates before the question rule is applied would be much too inadequate unless it can be shown in general that the adverb-forming rule has semantic consequences. There does exist some semantic
difference between adverbs-qua-underlying predicates and surface adverbs, which would seem to suggest a clue to a possible explanation for the above data. Schreiber (1970) observes that there is a difference (at least at the discourse level) between (22) and (23).

(22) a. Clearly, Hitler was a madman.
    b. That is false.
    c. He was not.
(23) a. It is clear that Hitler was a madman.
    b. That is false.
    c. He was not.

(22b) denies that Hitler was a madman, while (23b) denies that the assertion is clear and (22c) is normal after (22a), while (23c) following (23a) sounds strange. However, the data are, again, unclear. The results of checking around with my native informants show that both (22a) and (23a) can be equally well denied in these two ways with no obvious semantic difference at all.

**State-of-mind Adverbs and Manner Adverbs**

Recall that state-of-mind adverbs are those that imnute states of mind to participants in events and have been symbolically represented as (24),

(24) Adv $\forall X, \left[ F(X, \ldots ) \right]$

where $X$ indicates some participant; $S$ indicates the event specified by the embedded sentence $F(X, \ldots )$ and the whole expression means that $X$ is in some mental state in relation to some event. (24) may be converted into a phrase-marker in the form of (25),
Which, as a matter of fact, is just the analysis Lakoff (1965) proposed for sentences like (26).

(26) John opened the door intentionally.

The claim on this analysis is that all state-of-mind adverbs are two-place predicates relating an agent and an event. Moreover, the subject of the higher clause must be identical with that of the embedded clause. By nominalizing the embedded sentence we also get (27).

(27) John's opening of the door was intentional.

If the semantic data on attitudinal adverbs as given in sentences (22) and (23) are unclear, the data on sentences (26) and (27) seem completely clear. There is no possible presuppositional difference, and the two sentences are fully synonymous.

It was stated earlier that a sentence such as (28),

(28) John carefully opened the door.

in which carefully appears in second position, is ambiguous. On one reading, it is a state-of-mind adverb and the sentence expresses the idea that John was careful to open the door; on another reading, it characterizes the way John's action of opening the door is effected, and the adverb is properly a manner adverb. The sentence means that John opened the door in a careful manner. It is clear that the underlying representation in either (24) or (25) expresses only one of the two readings; that is, the reading associated with carefully as a

```
(25)
S
  | V
  | NP . NP
  | Adv X
  | S
  | V
  | NP . NP
  | X
```
state-of-mind adverb. Now, the question is: what would the appropriate underlying structure for the manner adverb look like? It can not be something like that shown in (25), nor can it be something like that shown in (20). If it was like (2), that would obliterate the distinction between the semantics of epistemic adverbs and that of manner adverbs. Moreover, such an underlying structure i.e., one that looks like (2) would fail to specify the condition on agentive identity and selection restrictions of the sort mentioned a while ago. In order to find such an underlying structure which, for carefully as a manner adverb, would distinguish itself from (25), current practice among grammarians consists generally in positing richer deep structures for superficially simple sentences. One way of distinguishing the underlying structure for carefully as a manner adverb from that for carefully as a state-of-mind adverb would be the following:

The phrase marker in (29) expresses the idea that John did something (the opening of the door) in a careful manner. The phrase-marker in (30) says that John was careful to do something (which was the opening of the door).
Given these two underlying structures, transformations of certain unknown character would be required to conflate the three underlying constituent sentences into one. In the absence of syntactic justification for the grammatical rules doing the job that needs to be done in this case, the status of the proposed deep structures would seem somewhat dubious.

If we studied carefully the proposed deep structures, we would find that they still fail to tell us what we know about the meaning of the sentence in (28). In fact, exactly the same difficulty remains. In each case, careful is a two-place predicate relating John and some activity, so that what we know about their differences doesn't appear clearly in configurations. We still do not know what represents the meaning of carefully as a manner adverb and what represents the meaning of it as an adverb of state-of-mind. We must conclude that the proposed deep structures make no obvious gain in showing clearly the semantic distinction between carefully as a manner adverb and carefully as a state-of-mind adverb.

Carefully is an adverb that selects both verbs and subjects.

This is the reason for considering it as a two-place predicate. The
question that concerns us now is: what is the predicative status of manner adverbs such as \textit{hard}, \textit{heavily} and \textit{with a limp}, as in (31)-(33).

(31) It rained heavily.
(32) The wind blew hard.
(33) John walks with a limp.

These adverbs zero in on the description of the manner of action identified in each case, by a verb. They do not select their subjects; though they do select verbs (manner adverbs occur only with either activity verbs or change-of-state verbs). There is, then, no reason for thinking of them as two-place predicates. Are they one-place predicates? I have shown that one-place predicates take a sentential argument which expresses an event or a state of affair. But manner adverbs are not like these. Note that we can't use the possibility of nominalizations as an argument that manner adverbs also take a sentential argument since not all manner adverbs may undergo the nominalization rule. \textit{John's walking is with a limp} is impossible.

We have established the predicative properties of the manner adverbs. We now look for tree diagrams or functional notations to express the grammatical properties of these manner adverbs. These adverbs can not have underlying structures like those for epistemic adverbs. Epistemic adverbs are one-place predicates but fail to select either the subject or the verb; they tell us how propositions, specified in each case by a sentence, are to be taken and understood. The object is to look for some sort of symbolic representation by which what we know about manner adverbs would fall out more or less explicitly and distinctly. There does not seem to be appropriate
symbolic representations to represent the relationships between an activity indicated by a verb and the nature of that activity indicated by a manner adverb. The grammatical apparatus we operate with merely allows us to express, for various predicative relationships between predicates and arguments, either (34) or (35),

\[
(34) \quad S \quad \mid \quad V \quad \mid \quad NP \\
(35) \quad S \quad \mid \quad V \quad \mid \quad NP \quad \mid \quad S
\]

but nothing for the sorts of things we want to be able to represent for manner adverbs.

**Degree Adverbs**

The same difficulty mentioned in the preceding paragraphs also crops up in attempting to give an analysis of both descriptive degree adverbs and reactive degree adverbs, for the grammatical relations between degree adverbs and the adjectives (or other adverbs) that they "qualify" may be said to be the same as those that exist between manner adverbs and co-occurring verbs.

Degree adverbs, by the same reasoning, have to be looked upon as one-place predicators. In (36) it means that the degree to which John is tall is extreme.

\[
(36) \quad \text{John is extremely tall.}
\]

One might volunteer something like (37) as an underlying representation for the sentence:
But (37) also has its own problems. It suggests that the degree adverb is an argument of the predicate tall and that tall is a two-place predicate. Degree adverbs can hardly be thought of as ordinary noun phrases serving as arguments of various predicates; that would vitiate the distinction between adverbs and noun phrases. The transformation rules which may apply to NP John never apply to degree NP. Furthermore, the proposal that every adjective is a two-place predicate just because it can take a degree adverb is difficult to maintain, for the argument, if taken to its logical conclusion would mean that every verb (or adjective) is a multi-place predicate for the reason that it can take all kinds of modifiers: time, locative and degree adverbs.

The grammatical theory that we have been operating with also fails to illuminate the type of ambiguity found in sentences like

(38) John aimed at the target.

where ambiguity results from the possibility of interpreting the adverbial phrase in question as being associated with the sentence as a whole or just the verb phrase. That is, (38) has the interpretations of (39).

(39) a. John aimed (at the target).
    b. At the target (John aimed).

Our grammar can not represent both interpretations, and in order to handle (39), has to allow for a deep Adverb category which would serve
to make explicit the grammatical notion of the so-called verb-phrase modifier. This ADV would serve to relate the ideas of manner and degree to the action associated with a verb or to quality associated with an adjective. I recognize that the semantic relationships of Adverb and its head may be much more varied and complicated than I might think of; at the moment this seems to me the most natural approach, however.

The problem has an analogue in the analysis of attributive adjectives. John is a good writer is not analyzable into John is a writer and John is good. Attributive adjectives such as good in this sentence do not lend themselves to translating into a conjunction of two conjuncts. Verb phrase adverbs such as degree and manner adverbs (including things like in the abstract) are attributive modifiers which do not translate into a predicate-argument type of structure. That is, John write well can not be given an analysis involving just the notions of predicate and argument. The current grammatical theory offers us no insight into the syntax of attributive modifiers.

**Performative Adverbs**

Some performative adverbs, it will be recalled, indicate the speaker's state of mind in respect to the statement he makes and may be represented as (40),

\[(40) \text{Adv} (I, \text{Speak} (I, S))\]

meaning that the speaker is in some state of mind about the statement he makes. (40), translated into a phrase-marker would look something like (h1).
My use of the term performative adverb has been intended merely to suggest that states of mind associated with such adverbs are generally imputed to the speaker of a speech act. The presence of I in both higher clauses in (41) is no vindication of Ross's (1970) well-known argument that the underlying structure of declarative sentences contains a higher clause—the so-called performative clause—which has I as subject and you as its indirect object, and which contains a performative verb like say. This can be shown by the fact that in (42) the state of mind associated with honestly is being imputed (or, more exactly, demanded of) the locutionary target (to use Fillmore's term) you and that (41) can itself be embedded as object clause of the performative sentence, as in (43),

(43) I tell you that Mary is, honestly, a bore.

where the performative clause I tell you can be optionally deleted by the operation of Ross's performative deletion rule. In Rutherford (1970) evidence is presented to show that the performative deletion rule may not be optional. One exception to the deletion rule Rutherford noted involves these performative adverbs (what he calls, instead, manner adverbs) we are now considering. A sentence such as (44)
There was frankly nothing that I could do about it. is to be, according to Rutherford, derived ultimately from (45),

(45) I say frankly that there was nothing that I could do about it.
in which I say frankly is, on his analysis, part of the performative clause. On the strength of the sentences in (42) and (43), it is clear that I say frankly can not be part of the performative clause; consequently, evidence involving performative adverbs (his manner adverbs) constitutes no exception to Ross's performative deletion rule.

The performative adverbials such as to tell you the truth, to give you an idea (= to tell you something that would help you), to change the subject (= to tell you something different), and to recapitulate, etc., on the other hand, may, as Rutherford also observes, actually come from the performative clause, with later deletion of the performative subject, for they meet the conditions that the performative sentence must have a first person subject and a second person indirect object, and contain an abstract verb like say.

Adverbs of Viewpoints

Suppose we regard the formation of an adverb of viewpoint in a sentence as a process of thematization. Since thematization and topicalization appear to exclude each other in a sentence, i.e., theme and topic can not appear concurrently in a single sentence,\(^1\)

\(^{1}\)Note the similar, though not identical, restriction on the
interpretation of two *wa*'s in a Japanese sentence: if there are two occurrences of *wa*, only the first can be interpreted as a thematic marker, the second is a marker of contrast.

and since topics result from topicalizing the deep cases, one would also expect to derive adverbs of viewpoints from a similar source. But while topics always hold certain grammatical relationships to the main verb, depending on what the deep cases are, adverbs of viewpoints select neither the subject nor the verb. It follows that thematization is a purely semantic process: certain conditions on discourse well-formedness must be met in order for sentences in which any adverb of viewpoint occur to be acceptable. It is possible to come to grips with some of these conditions, such as the notions of relatedness and continuity, though I have no idea how to formalize these conditions.

Apart from the problem of uncovering what the conditions on thematization would be, there is also the problem of knowing exactly what the semantic relationship between an adverb of viewpoint and the rest of the sentence should be, for which I also have no answer.

Evaluative Adverbs and Adverbs Expressing State

Evaluative adverbs, to repeat, express an assessment of the actor's participation, (or lack thereof) in an event, as in (46),

(46) John foolishly did not call Mary.

which carries the idea that John was foolish in that he did not call Mary, and the semantic contribution of foolishly is to predicate causal relation of John's foolishness and his failure to call Mary. (46) can, therefore, be paraphrased as (47).
(47) John was foolish in that he did not call Mary.

Adverbs expressing the state of some participant in an event are like gallantly and sullenly in (48) and (49):

(48) John gallantly escorted Mary home.

(49) John sullenly walked out of the room.

(48) suggests that John was being gallant when he escorted Mary home, and (49) has the interpretation that John looked sullen as he walked out of the room. The semantic contribution of the two adverbs, then, is closely parallel to that of evaluative adverbs. Use of evaluative adverbs and adverbs like gallantly to achieve what would otherwise be expressed by two clauses holding certain semantic relationships is quite characteristic of English, as I hope to have shown in the Excursus of chapter two. What I want to consider next is to show how these adverbs are introduced into the grammar and come to behave in ways that they do.

I have suggested that a sentence like (50) can be paraphrased by something like (51).

(50) John returned the book anonymously.

(51) John didn't indicate his name when he returned the book.

As a first approximation, (51) might be taken as the appropriate underlying structure for (50), since it at least has the virtue of providing semantic elucidation for the sentence in (50). The question now is to find relevant syntactic facts which would independently justify the positing of the two clauses in (51), one of which being a subordinate clause. Unfortunately, I have looked in vain for
evidence of this sort. There are, however, other sorts of indirect evidence that one might adduce to support the existence of an underlying structure in (51). I have learned that languages such as Arabic, Lahu, Tagalog, as well as Mandarin, which are suffixless languages, typically make use of and only have constructions very similar to (51) to express the meaning of (50). The second sort of indirect evidence consists in showing that these adverbs must have underlying representation different from those for other types of adverbs. This in turn consists of a two-step reductio ad absurdum. First, these adverbs cannot come from higher predicates, for all the predicate-argument relationships we have established fail to reveal the ways in which these adverbs are understood semantically. Second, these adverbs cannot come from coordinate structures. The latter argument can be clinched by the usual syntactic criteria such as negation and interrogation and such semantic criteria as presupposition, entailment, and assertion, which, taken together, would demonstrate that (50) underlyingly cannot have a coordinate structure. For example, (50) presupposes that John returned the book and asserts that he remained anonymous while doing so. Sentence (52), the negation of (50), maintains the same presupposition: so does (53), the negation of (51):

(52) John did not return the book anonymously.

(53) John did not remain anonymous when he returned the book.

I conclude that (50) would have the deep structure much like that which underlies (51). If this is in fact the case, the structure in (51) would seem to suggest that upon deletion of the subject and the copula-like verb of the main clause, the main predicate undergoes
the adverb-formation rule, while the when-clause becomes the main clause with deletion of the subordinate marker when. Of course the transformations that would be required to do what I think needs to be done remain to be justified. But when that is taken care of, English would begin to look more like such languages as Arabic, Lahu and Tagalog.

One further observation about (51). The fact that in the course of deriving (50) from (51), elements in the main clause are largely deleted and the subordinate clause becomes ultimately the main clause in the surface structure suggests that the proposed deep structure is suspect. I now acknowledge the possibility that it may be wrong altogether. The following sentences seem to suggest, on the other hand, that an adverb may also come from a subordinate clause or that at least it is unclear where it might come from.

(54) John stupidly stayed in Berkeley.
(55) John sat indolently in a corner.
(56) John protectively folded his arms.

Does (54) mean that John was stupid in that he stayed in Berkeley or that because John was stupid, he stayed in Berkeley? Does (55) carry the idea that John was indolent in that he sat in a corner or that he sat in a corner because he was indolent? Does (56) have the interpretation that John acted protectively as he folded his arms or that John was being protective because he folded his arms?

Results of checking around with my native informants are not entirely uniform, though a majority maintain that for each sentence the first interpretation is the more correct one.
Notes on the Logical Forms of Adverbs

Adverbs and adverbial phrases play an important role in describing actions and events generally; but not until Kenny (1963) and Davidson (1967) were the difficulties in representing them in classical quantification theory pointed out. Davidson was concerned with showing in logical form the entailment relations between sentences such as (57), (58), and (59):

(57) John buttered the toast in the bathroom with a knife at midnight.
(58) John buttered the toast in the bathroom with a knife.
(59) John buttered the toast.

There seems to be no limit to the number of adverbs and adverbial phrases that can be tacked onto a sentence like (59), since every action occurs somewhere, sometime and with something. A concern about getting the logical form of action sentences straight in which adverbial expressions occur involves considerations of the entailment relations between sets of related sentences and of the roles of words in the sentences. The problems with adverbs, as Davidson sees it, are the following. There is no appropriate designating singular term for the action associated with adverbial expressions. Secondly, there is nothing in the logical form which gives the desired entailment. It may be thought that the needed entailment can be obtained by interpreting (59) as elliptical for something like (57). This is fine if we know some fixed number of places for the predicates large enough to accommodate all action sentences. This has become known as the problem of variable polyadicity.
(Kenny (1963), p. 159) which hinges in general on the problem of how to handle adverbs and prepositional phrases.

Davidson's solution lies in postulating the singular term X which represents an event and in formalizing the occurrence of modifiers as predicated for these events, so that the event can be characterized in a number of ways, and the logical inference involving action sentences can be drawn. Davidson thus analyzes action sentences as a species of event sentences. Actions are, therefore, events. On this analysis, kick in Shem kicked Shuan, which we normally think consists of two names and a two-place predicate is to be analyzed as a three-place predicate: (3 X) (kicked (Shem, Shuan, X)) and we read "there is an event X such that X is a kicking of Shuan by Shem". Died in Ceasar died is a two-place predicate: (3 X) (died (C,X)), i.e., "there exists a Ceasar-dying event".

Of course we can not say that (57) is a five-place predicate and (58) contains a four-place predicate and (59) a two-place predicate. If we do so, we obliterate the logical relations between the sentences, i.e., (57) entails (58) and (59). The sentence (57), therefore, is symbolized by Davidson as (60),

(60) (3 X) butter (John, toast, X) & in (bathroom, X) & with (knife, X) & at midnight, X)

meaning that John's buttering of the toast is an event such that the event took place in the bathroom, with a knife and at midnight. The event is now characterized in three ways and the logical entailment is made apparent.

As with any other novel analysis, there are also difficulties with Davidson's proposed analysis. The difficulties are of two sorts.
Certain verbs take adverbs obligatorily and these adverbs must be viewed as part and parcel of the action identified by the verb: John behaves well, where a manner adverb such as well is obligatory; John worded his answer carefully, where a manner adverb such as carefully is obligatory; The earthquake lasted 10 seconds, where a time adverb such as 10 seconds is obligatory. In these and other similar examples, it makes little sense to say that John behaves is an event and, conjunctively, well is also an event; that John worded his answer is an event and carefully is also an event; that The earthquake lasted is an event, and, conjunctively, 10 seconds is also an event.

Fodor (1970) also points out that a sentence like John spoke slowly can not be correctly represented as (exists X) (spoke (John, X) & slowly (X)) for two reasons. If X is an event place, then of course slowly is the wrong modifier. Secondly, the sentence is identical with John's speaking was slow, where the predicate slow is predicated of a manner, the manner of John's speaking, not of an event, and manner can not be equalized to event. It follows that even if the sentence was represented in the way Davidson would suggest, then we still could not get the semantics of the sentence correctly. In general, Davidson's analysis fails to give a correct account for the logical properties of VP adverbs (manner and degree adverbs), and, by the same argument, also fails to account for what I have called resultative adverbs.

The conclusion bears a striking resemblance to what we have independently arrived at on syntactic grounds, for the attempt to derive adverbs from higher predicates is quite parallel to the attempt to postulate the singular term of event and to think of adverbial modifiers as all predicators of these events.
Even with sentence adverbs there are also problems with Davidson's program. In (61)-(67)

(61) John sliced the salami in a dream.
(62) John presumably sliced the salami.
(63) John can slice the salami.
(64) John allegedly sliced the salami.
(65) John supposedly sliced the salami.
(66) John, I believe, sliced the salami.
(67) John, I think, sliced the salami.

in a dream, presumably, supposedly, think and believe are two-place modal operators, and can and allegedly are one-place operators. No logical inference can be drawn; (61) does not entail (68), nor does (63) entail (69):

(68) John sliced the salami.
(69) John slices the salami.

None of these sentences, therefore, can be put into Davidson's logical representation; for once put into it, we should be able to draw the inferences. It is not immediately obvious that there is a way of enriching Davidson's analysis so that these modals would become handable.

The problem of variable polyadicity of predicates and the problem of preserving the entailment relationships apply not just to event sentences, but also to sentences expressing facts, state of affairs, statements and propositions—essentially those classes of sentences we have identified in chapter one and whose underlying structures we have worried about in the present chapter. Clearly, Davidson's solution to event sentences can be, or, at least is
intended to be, generalized to these classes of sentences, provided that we can come up with other appropriate singular terms like facts, state of affairs, statements and propositions. To these, the force of the above criticisms may well still fully apply.
CHAPTER FOUR

CONSTRAINTS ON ADVERBIAL PLACEMENT

Some Data

"The position of the tertiaries forms a very difficult chapter of English grammar. How complicated this subject is appears very clearly when we see that the exhaustive treatment of just two adverbs, never and ever, by E. Buissen takes up no less than ten pages." (Jespersen ((1949), p. 83).

One of the most interesting problems in connection with the study of the syntax of adverbs certainly is the problem of adverb placement. Traditional grammarians working on the adverb generally identified and arrived at--on the basis of some semantic and morphosyntactic criteria--such and such types of adverbs and worried about how each type of adverb is put to use in sentences.

Another way of looking at this problem is to take the semantic functions of adverbs as basic and regard various surface possibilities as derivable from them by rules of grammar (or by derivational constraints). In chapter one I have already identified and characterized several important semantic functions of adverbs; in chapter two I have looked into surface possibilities of these semantic properties in a number of languages; in chapter three I have considered several ways for syntactic reconstructions of the
semantic properties of adverbs. Here I will inquire into the question of how grammatical theory provides ways for handling the problem of adverbial movement.

There is no dearth of material on accounts of movement possibilities of English adverbs, as attested in such traditional works as Kruisinga (1932), Poutsma (1938), Jespersen (1949), and, more recently, in the work of Katz and Postal (1964), Chomsky (1965), Keyser (1968), Jackendoff (1969) and Schreiber (1970). In the following I will first present a core of data on adverbial placement drawn mostly from Poutsma (1938) and Jespersen (1949), and subsequently take up, based on these data, the problem of constraints on adverb movement.

Adverbs may in modern English have the following five positions, and various classes of adverbs can occupy different combinations of these five:

A. in front, i.e., before both subject and verb
B. between subject and verb
C. after subject and Aux, but before verb
D. between verb and object or prepositional object
E. at the end of the sentence.

In position A and occasionally E, the adverb may be said to be in extraposition, in the latter case as a kind of afterthought, so that we may focus our attention on positions B, C, and D.

One class of adverbs can occupy all five positions, but changes meaning according to positions, for example, in (1)-(6).

(1) He kindly offered me his assistance.
(2) He spoke kindly to me.
(3) He offered me his assistance, which was kind of him.
(4) John clumsily stepped on the snail.
(5) John stepped on the snail clumsily.
(6) John was clumsy to step on the snail.

(1) is ambiguous between (2) and (3); similarly (4) is ambiguous between (5) and (6). Adverbs that behave like kindly in (3) and clumsily in (4) are what I have termed kvalutive Adverbs.

The following sentences show that evaluative adverbs can also occur in position D.

(7) She stood timidly by.
(8) He sat dejectedly in a corner.
(9) They looked hopelessly at it.
(10) He nodded silently to the other.

Since the question of whether an adverb in a sentence-modifier of a word-modifier, is of considerable importance in fixing its place in a sentence, it is necessary at this point to introduce the notions of adverbial scope, sentence adverb and VP adverb. Adverbial scope may be understood in one of two ways. Ordinarily an adverb, if used in two different senses, is said to have different scopes. But I will define the scope of an adverb, in terms of the notions of sentence adverb and VP adverb, as that part of a sentence which is interpreted as being modified by the adverb. An adverb, thus, is a sentence adverb if it has the whole sentence as its scope. On the other hand, it is a VP adverb if its scope is anything but a sentence.
Under this definition, an adverb, even if used in two different senses, may still have the same scope. Epistemic, attitudinal, evaluative and state-of-mind, and most time and locative adverbs are sentence adverbs; manner and degree adverbs and some time and locative adverbs are VP adverbs. From the proposed underlying structures in chapter three for these sentence adverbs, we can see that they share in taking as argument a full sentence and predicating event, fact, or state of affairs of the sentence. VP adverbs, on the other hand, come from a deep adverb. Semantically, the distinction between sentence adverbs and VP adverbs is that the latter can become the focus of clause negation and interrogation, the former may not. For example, in *He did not do it slowly*, the scope of negation is on *slowly*, a manner adverb; in *He did not stay long Friday*, the scope of negation is on *stay long*, rather than on *Friday*. There are several problems with the semantic test which I hope to be able to clarify in the following pages.

For a number of adverbs which can occupy all five positions, there is no observable change in meaning, as Jackendoff ([1969], p. 201) also noted. Such adverbs are the manner adverbs *slowly* and *quickly*, state-of-mind adverbs *intentionally* and *willingly*, and some indefinite time adverbs *frequently* and *immediately*.

Adverbs of indefinite time are often found in position B. This is the rule with *never* and *always*.

(11) He never makes a mistake.

(12) He always comes late.

With other adverbs of indefinite time the same order is frequent,
but not obligatory in the same way:

(13) \[
\begin{cases}
\text{Sometimes} \\
\text{Occasionally} \\
\text{Often}
\end{cases}
\] he makes a mistake.

Some indefinite time adverbs like *always, never, rarely, and just* occur chiefly in position B; if there is a copula, then they may also follow the copula; if there is an Aux, they come immediately after the first Aux element:

(14) John \[
\begin{cases}
\text{was never} \\
\text{never was}
\end{cases}
\] the same again.

(15) I should never have thought of that.

(16) John has often been asked whether he is a minister.

Epistemic adverbs can occur in positions A, B, C, and D. In E, they are often separated from the rest of the sentence by a pause; in writing by a comma. They typically have paraphrases like (21).

(17) Evidently, John was no talker.

(18) John evidently was no talker.

(19) John was evidently no talker.

(20) John was no talker, evidently.

(21) It was evident that John was no talker.

Epistemic and attitudinal adverbs may not occur in imperatives. They are also excluded from interrogatives, with the exception that in position B, epistemic adverbs may occur. Examples have been given in chapter three. Also both epistemic and attitudinal adverbs may not occur after *not*:

(22) *He was not probably sick.

(23) *He was not fortunately sick.

Degree adverbs can only occur in position C and some adverbs which are on the borderline of manner and degree may in addition
occur in position E.

(24) He is by far the fastest miler.

(25) I understand you perfectly/completely.

E is also the position of adverbs accompanied by other degree adverbs or degree phrases.

(26) I like the solitude of the house very much.

(27) They wanted me so badly that I could not leave them.

(28) He has changed a good deal.

A remarkable exception to the rule is enough. If there is an object, enough occurs in either position D or E; if there is no object, only in E.

(29) The letter is long enough.

(30) The attack on the bridge was a brave enough adventure.

(31) She used to have good eyes enough.

Some adverbs, typically monosyllabic non-ly adverbs, only occur in position E.

(32) John hit the bell loud.

(33) John eats his dinner fast.

Some adverbs like merely, utterly, hardly and simply can occur only in positions B, C, and, when there is an object, also in D.

(34) I hardly think we want it.

(35) John was merely hinting at it.

(36) John uttered hardly a word.

Manner adverbs sound odd when they precede a modal, either in position A or B; they are much better after the modal, i.e., in position C.
(37) ?Slowly John will open the door.
?Dave quietly may leave the room.
?Bill cleverly can touch his tongue to his nose.

(38) John will slowly open the door.
Dave may quietly leave the room.
Bill can touch his tongue to his nose clearly.

Any adverb which appears in position A can not be embedded further (Jackendoff (1969), p. 207):

(39) ?George says that evidently Bob has disappeared.
(40) ?I will not come because probably my mother is sick.
(41) *Did you see that man who quickly Mary ran away from?

Before aspect, a modal or emphatic do, only sentence adverbs (excluding time and locative adverbs) are possible.

(42) George {probably {has read the book
                  *completely {is finishing his dinner
                   {was ruined by the tornado
                    {will lose his mind
                      {did eat up the cabbage

After any one of these Aux elements above, either kind of adverb is all right (Jackendoff, p. 215).

(43) George {has {probably {read the book
             is {completely {ruined by the tornado
             was {lose his mind
             will {eat up the cabbage
             did

If the adverb is after two auxiliaries, only the VP adverb is possible (Jackendoff, p. 216).

(44) George {will have {probably {read the book
             will be {completely {ruined by the tornado
             has been {ruined by the tornado
Jespersen also observed that the difficulties in placing the adverb increase when the same sentences contain two Aux elements. He recorded the following preference among his informants (p. 103):
this will probably be said (to: this probably will be said); examples may easily be found (to: may be easily found); it will often be said (to: it will be often said); the whole matter has been publicly discussed (to: has publicly been discussed); it must also be constantly borne in mind (to: he also constantly borne in mind);
he has often been there (to: he had been often there); some preferred the family had been long settled in England to the family had long been settled in England; some thought the two orders equally good: I must have indeed been shy or I must indeed have been shy; the whole matter has been frequently discussed or the whole matter has frequently been discussed.

It is a regularly observed and observable phenomenon that the meanings of many adverbs change if their positions in sentences are shifted about.

(45) He then went to London.
(46) He lived then in London.
(47) Then it is true that he did it.

Thus then in (45) suggests sequence in time, in (46) it refers to some time in the past and in (47) it means "accordingly" and often has position A.

Again is used in two different meanings, i.e., it may or may not indicate repetition. Again in (48) suggests repetition; in (49) someone else turned the engine off and John started it again.
(48) Again John started the car.

(49) John started the car again.

*Once more* works exactly like *again*. In (50) it indicates repetition
(of saying), but in (51) no repetition is meant.

(50) Will you say that once more.

(51) He was very happy when he was once more at home.

(52) and (53) are similar.

(52) Get back to civilization again.

(53) Get back again to civilization (repetition).

*Again* and *once more* are ambiguous only when they are in
construction with verbs which indicate change of states: *start*, *stop*,
close, shut, begin, break, move, put, and open. With pure activity
verbs, they are not subject to ambiguity no matter where they are
placed. (54) and (55) are synonymous.

(54) John again kissed Mary.

(55) John kissed Mary again.

*First* either means "for the first time", as in (56) or denotes that
an action comes in for performance before any other, as in (57).

(56) When I first saw her, she was just a child.

(57) I should like to go out, but first I will finish
this letter.

In this sense, *first* may also occur in end-position. In front-
position, it has the meaning of *firstly, in the first place*.

*Generally* in position B means "at most times", as in (58).

(58) He generally made himself useful.

When *generally* indicates that no attention is paid to special points,
it is in position B or immediately precedes the word it qualifies, as
in (59) and (60).

(59) He made himself generally useful (= in a general way).

(60) He made himself useful generally (= in a general way).

Once in position B has the meaning "on some occasion in the past", and is weakly stressed, as in (61).

(61) He once told me.

But in (62), it implies not twice and is stressed.

(62) He told me once.

In position A, once is synonymous to "as soon as", as in (63).

(63) John can not fight again once he is floored.

Constraints on Adverbial Movement

Given the data presented above and given the assumption that sentences containing the adverbs can be assigned syntactically-motivated and semantically-correct underlying structures, as shown in chapter three, what sorts of derivational constraints for adverbial placement would be required? I believe the above-mentioned data suggest that three cases must be distinguished for the purpose of this discussion: 1) the first case concerns adverbs like quickly, immediately, intentionally and sometimes for which change in position does not accompany change in meaning; 2) the second case has to do with adverbs like almost, even, only, often, again, surprisingly and positively, for which change in scope is a function of a change in position. These adverbs are not ambiguous, however; 3) the third case involves all of the ambiguous adverbs like generally, then, accordingly, first and once, for which each lexical reading is typically associated with a certain
more or less fixed position in the sentence. The first case does not need further discussion, for those adverbs can simply be marked to be freely transportable, in the sense of Keyser (1968), with no obvious semantic effects. For the remaining two cases I propose to handle their semantic interpretations in terms of an Adverb Scope rule.

Before embarking on an investigation of possible constraints on adverb movement, one might raise the question as to whether there is a universal ordering phenomenon regarding the order of adverbs in relation to other sentence constituents across languages. The existence of such a universal will automatically simplify grammatical statements of the constraints on adverb placement for every language. I believe I have found such a linguistic universal. In all of the languages I have looked into—essentially those whose surface phenomena of adverbs I have examined in chapter two—it appears to be generally the case that if the relative clause precedes the head noun in a language, then the VP adverb also precedes the head verb (i.e., the main verb) in that language. If the relative clause follows the head noun in a language, then the VP adverb also follows the head verb in that language. The fact that there is such a universal ordering phenomenon does not seem surprising since both relative clauses and adverbs are grammatical modifiers and may be expected to share syntactic behavior in common. If we derive attributive adjectives from relative clause structures, then the adjective-fronting rule will be essentially the same syntactic operation as the rule which optionally moves VP adverbs to pre-verbal position. We may conclude that the basic order for VP adverbs (in English, that is), is after the head verb, not before it.
Next we ask whether in English there are general conditions which constrain the movement of English adverbs, so that we can focus our attention on those adverbs which fail to obey the constraints and exploit possible subregularities. Movement is a syntactic phenomenon, so it is only natural to look for syntactic constraints on adverbial movement.

Keyser (1968) observes that the positions in which adverbs occur correspond to major syntactic breaks in the derived structure. The transportability convention (TC), expresses this by permitting an adverb marked specifically (+transportable) to occupy any position in a derived tree so long as the sister relation with all other nodes in the tree are maintained, i.e., as long as it is dominated by the same node. By the TC, one would expect adverbs dominated by S to occur in positions A, B, C, and D. Here position E is presumably the position with an intonation break; adverbs nominated by VP would occur in positions C, D and E. The one place where any adverb must not occur is between the verb and the following object. To take care of this, Keyser appeals to a "surface structure tendency to prevent anything from intervening between a verb and the following Noun Phrase" (p. 371).

The TC depends crucially on prior decisions as to whether Aux elements should be daughters of the VP or of S and on the acceptance of the Chomskyan base as set forth in Aspects in which English is considered a SVO language and in which VP is a deep structure category. Of course, this in itself should not be taken as an argument against either McCawley's hypothesis that English is a VSO language (McCawley (1970)) or the generative semanticist's base in which only categories N, NP, S and V are recognized. Nevertheless, Keyser's observations
seem to me to be essentially correct and will be accepted here. Below I will try to recast Keyser's observations in terms of derivational constraints and examine in greater detail the relevance of the notion of major syntactic break to the constraints on adverbial placement.

Consider first an adverb such as generally in (64) through (67):

(64) Generally John made himself agreeable.
(65) John generally made himself agreeable.
(66) John made himself generally agreeable.
(67) John made himself agreeable generally.

Generally in the first two positions acts like an adverb of indefinite time and means at most times. It is a sentence adverb. The two back positions have the function of modifying a single word and mean in a general way. It is a VP adverb since sentences (64) and (65) differ semantically from sentences (66) and (67). We would expect the corresponding underlying structures to exhibit the semantic difference by deriving the first generally from a higher predicate and the second generally from, I have suggested, a deep Adverb. Hence what appears to be the same lexical item is given two distinct derivations. In this analysis, generally as a sentence adverb is no more related to generally as a VP adverb than any other two English lexical items are related to one another. And the fact that they have the same phonological shape is an entirely accidental phenomenon. If generally is in fact consistently predictably ambiguous—that is, the two senses of the word are correlated with its differing scopes—then the grammatical theory should tell us that it is so. One way of showing this is to have an adverb scope rule which will optionally change semantic sentence adverbs into VP adverbs. If this rule is correct, it
implies that the division of adverbs into sentence adverbs and VP adverbs is a semantic one. Conversely an adverb which is always either a sentence adverb or a VP adverb can not be ambiguous.

Not all adverbs work like generally, however. In (68)-(71)

(68) Certainly John liked the play.
(69) John certainly liked the play.
(70) *John liked certainly the play.
(71) *John liked the play certainly.

we do not have a problem with the first two sentences, but what about the ungrammatical (70) and (71)? These can be ruled out by the following derivational constraints.\(^1\) (70) can be blocked by the general constraint that no adverb can intervene between a verb and its object. In (71), certainly is a sentence adverb and may not be lowered to become the daughter of a verb phrase. Just how general is the constraint that no adverb can intervene between a verb and its object? Consider (72) and (73), taken from The Daily Californian, March 20, 1970.

(72) We have begun promptly the meeting.
(73) We have begun promptly the meeting to ascertain student interests and expectations.

(73) suggests that freedom in the occurrence of adverbs in part hinges upon the complexity of the complement of object noun phrases, though

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\(^1\)The concept of 'derivational constraints' is due to Lakoff (1969). It has recently come under attack (see Chomsky (1970), Lasnik (1971)), but I will assume here that a theory of grammar has to be strengthened by the addition of the machinery of derivational constraints.
the problem of formalizing the notion of structural complexity remains to be worked out, as (74)-(77) show.

(74) Certainly John did not like the play.
(75) John certainly did not like the play.
(76) *John did not certainly like the play.
(77) *John did not like the play certainly.

Since certainly commands not, it must precede not in the surface structure. In (76) and (77), not precedes certainly, and hence they are ungrammatical. Consider (78)-(81):

(78) Positively, John did not like the play.
(79) John positively did not like the play.
(80) John did not positively like the play.
(81) John did not like the play positively.

Positively is a performative adverb in both (78) and (79). In (80) and (81), it is a degree adverb. The two occurrences of positively generally thus have different scopes, but I do not think they differ in meaning. The first positively is also a degree adverb in the higher clause in which it appears. Positively, then, acts like two much-studies adverbs: even and only, which take on different scopes as their positions in the sentence change. The meanings of these

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2 Assuming normal stress patterns, the following results on the scope of even are reported in Chapin (1970):

(i) Berkeley will even hold a pep rally tonight (scope: entire S.)
(ii) The boys even destroyed the glass door (scope: the VP)
(iii) Harry threw even the newspaper (scope: the object NP)
(iv) Even John failed the exam (scope: the subject NP)
(v) You should not even touch the ball (scope: the verb)
In some dialects of English, according to Chapin, a sentence-final even which has the sentence as scope is permitted:

(vi) John went home on time, even.
(vii) We ought to find out for him, even.
(viii) Max burped, even.

sentences depend on knowing the scope of positively. Since the meaning of positively remains constant, a natural solution would be to invoke the adverb scope rule suggested a while ago. The adverb scope rule is a surface structure interpretation rule since it depends on knowing the surface order of the adverb in question relative to other elements (e.g., not) in the sentence.

Note that in (80) and (81), not precedes positively and yet they are grammatical, for positively, unlike certainly, is a VP adverb and VP adverbs may become the focus of clause negation by occurring in position after not:

(82) He does not badly need it.
(83) I do not entirely agree with you.
(84) He does not actually need it.

Abruptly behaves very much like positively.

(85) Abruptly John backed away.
(86) John abruptly backed away.
(87) John backed abruptly away.
(88) John backed away abruptly.

The first two occurrences of abruptly act like an adverb of indefinite time and mean suddenly; the next two occurrences of it function like a manner adverb and mean in a sudden manner. Once again, abruptly is not to be considered ambiguous but only the front/end position it
occupies makes it appear so. It is as if the two front positions
dissociated the manner reading from the adverb and the two end
positions dissociated the time reading from it. In interrogatives,
the two meaning components are more clearly dissociated from one
another: (89) asks essentially why he backed away at all; whereas
(90) asks why he did not do it gradually.

(89) Why did John abruptly back away?
(90) Why did John back away abruptly?

Evaluative adverbs may occur in positions A, B, and D. They
may not occur in final position, except with an intonation break:

(91) Foolishly John stayed in Berkeley.
(92) John foolishly stayed in Berkeley.
(93) John stayed foolishly in Berkeley.
(94) ?John stayed in Berkeley foolishly.
(95) John stayed in Berkeley, foolishly.

Evaluation adverbs are sentence adverbs and sentence adverbs can
not be lowered to become a daughter of the verb phrase, as we have
seen in connection with epistemic adverbs. Sentence adverbs may
not become the focus of clause negation, which accounts for the
strangeness of (96)-(98).

(96) *? John did not foolishly stay in Berkeley.
(97) *? John did not stay foolishly in Berkeley.
(98) *? John did not stay in Berkeley foolishly.

The fact that the (b) sentences in (99) and (100) are not ambiguous
can be accounted for analogously.

(99) a. John clearly explained it (ambiguous).
    b. John clearly did not explain it (non-ambiguous).
Clearly in (99a) is either an attitudinal or manner adverb; in (99b) it is an attitudinal, for manner adverbs must become the focus of negation. Personally in (100a) is either an adverb of viewpoint meaning from my personal viewpoint, or a manner (?) adverb meaning in person. In (100b), it is outside the scope of negation, so only the first lexical reading is possible.

I have just remarked that manner adverbs must become the focus of negation. This means that since the function of manner adverbs is to characterize actions—but non-actions or omission of actions are not actions—so they can not properly be modified by manner adverbs. In (104) and (105) John did drive the car, only he failed to do so slowly:

(101) *Slowly John did not drive the car.
(102) *John slowly did not drive the car.
(103) *Slowly John forgot to drive the car.
(104) John forgot to drive the car slowly.
(105) John did not drive the car slowly.

State-of-mind adverbs like intentionally do not fit neatly into the scheme of the dichotomy of sentence adverbs and VP adverbs, because both (106) and (107) are possible.

(106) John intentionally did not do it.
(107) John did not do it intentionally.

Both occurrences of intentionally have the same meaning. Thus
intentionally differs from adverbs like positively in that a change in scope does not result in a change in meaning. It also differs from manner adverbs like slowly in that it may remain outside the scope of negation. Intentionally also behaves in ways different from adverbs like even and only in that a change in position fails to change its scope, as in (108) and (109).

(108) John intentionally did it.
(109) John did it intentionally.

Often appears to work like intentionally, as in (110) and (111)

(110) a. Often the man came in the morning.
    b. The man often came in the morning.

(111) a. The man came often in the morning.
    b. The man came in the morning often.

Often precedes the main verb came in the first two sentences, which are synonymous. In the second two sentences, often follows it and they are also synonymous. Thus the surface order of often relative to the main verb determines the meaning difference between the two sets of sentences. Consider occasionally, also an adverb of indefinite time.

(112) Occasionally, a stranger dropped by.
(113) A stranger dropped by occasionally.
(114) Occasionally, the stranger dropped by.
(115) The stranger dropped by occasionally.

(114) and (115) are synonymous and there is no difference in the scope of occasionally. But (112) and (113) are not synonymous. In the former, a different stranger appeared sporadically on the scene;
on one possible interpretation of (113), a specific and unidentified stranger was the sole actor on the scene. What do these sentences suggest? Note that occasionally in the last two sentences is a sentence adverb since it can not become the focus of negation. (116) is strange unless occasionally is heavily stressed:

(116) ?The stranger did not drop by occasionally

(117) Occasionally, the stranger did not drop by.

(116) is questionable, though (117) is impeccable. Neither (112) nor (113) may be negated.

(118) ?Occasionally, a stranger did not drop by.

(119) ?A stranger did not drop by occasionally.

Here we have a case in which the specificity of the subject noun phrase affects the interpretation of adverbs. I do not know why this is so, nor is it clear to me whether occasionally in (112) and (113) can be said to have different scopes.

Consider two other adverbs of indefinite time: temporarily and again.

(120) John closed the door temporarily.

(121) John closed the door again.

(120) means that John closed the door and it remained in the closed state temporarily; in one possible interpretation of (121), the door was previously open and John returned it back to the closed state. (121) is not synonymous with (122).

(122) Again John closed the door.

(122) has the interpretation that the action of closing the door is repeated. But both (123) and (124) are synonymous in that again in each case signifies repetition of action.
(123) John kissed Mary again.

(124) Again John kissed Mary.

((124) has another interpretation--again is taken as a performative adverb, which is ignored here.) Again can be a sentence adverb, since (125) is possible, although it is difficult to argue that it must be a sentence adverb and can not be a VP adverb.

(125) Again John did not kiss Mary.

(126) is as much a negation on the verb as on the adverb again.

(126) John did not kiss Mary again.

But the fact that (123) and (124) are synonymous show that again is a sentence adverb. It follows that both occurrences in (121) and (1220 are also sentence adverbs. But (120) and (121) are, as we have noted, not synonymous. In order to resolve the difficulty we would have to posit for (121) something like John closed the door or The door was closed again so that again is seen as associated with a different clause and the semantic difference between (121) and (122) becomes apparent.

The case with again does not suggest that the notions of sentence adverb and VP adverb are unnecessary superfluities, but does suggest that in order to find out what the scope of an adverb is, we have to also take into account the underlying structure of the sentence it appears in.

Temporarily, unlike again, can not be preposed to sentence-initial position, for (127) is rejected by all of my informants.

(127) "Temporarily John closed the door.

Temporarily is a sentence adverb, as is evidenced in (128), the negation of (120):
(128) John did not close the door temporarily.

The scope of negation is on the verb phrase close the door in (128), rather than on the adverb. The case with temporarily suggests that some sentence adverbs have defective distribution in not being able to occur freely, as the transportability convention would predict.

Some adverbs display interesting properties in passives. They demonstrate that the scopes of these adverbs depend not so much on the surface subject is on the total semantic effects of the sentence. Consider, for example, the following:

(129) a. Rightly, John sent a gift to Mary.

b. Rightly, Mary was sent a gift by John.

(129a) means that it was right of John to give a gift to Mary. But (129b), which is the passive of (129a), does not mean that Mary was right to be sent a gift, but that for Mary to be given a gift by John was a right thing to have happened, in the opinion of the speaker. Similarly, in (130a) the speaker is approving of John's boss' right to fire him.

(130) a. Rightly, his boss fired John.

b. Rightly, John was fired.

In (130b), the speaker gives his subjective opinion that it was a right thing to fire John, that John was fired was right. To say (131) would mean, however, that his firing is John's personal decision and that his decision was right.

(131) John was right to be fired.

Now consider willingly.

(132) a. John willingly took advantage of Mary.

b. Mary was willingly taken advantage of by John.
In (132a), the agent John was willingly involved in the act. In (132b), either the experiencer Mary or the agent John was. But patiently works differently:

(133) a. The doctor patiently examined Mary.
    b. Mary was patiently examined by the doctor.
    c. Mary patiently was examined by the doctor.
    d. Patiently Mary was examined by the doctor.

In (133a), patiently is predicated of only the agent doctor, so is (133b). A slight majority of my informants consider (133c) to be ambiguous and (133d) unacceptable. Conclusions based on these data must be somewhat shaky insofar as native speakers' judgments are less than uniform. But it does seem clear that both willingly and patiently are not agentive predicates, i.e., they are not necessarily predicated of the agent only.

Whether an adverb has an agentive scope depends in part idiosyncratically on one's willingness to attribute the extent to which the adverb in question might be agentively involved in some event or activity. (134a) is definitely out of the question, but (134b and 134c) seem much more acceptable:

(132) a. *Wisely John had a cold.
     b. Wisely John had a cold when he was supposed to work.\(^3\)
     c. Wisely, it was raining yesterday. John deserved to have his party spoiled.

\(^3\)As Prof. Zwicky pointed out to me, cases like (132b) have a "sneer quote" reading, not an ordinary one.
Attitudinal adverbs like fortunately and surprisingly are neutral with respect to agentivity. As (135) shows, they also occur in agentless sentences:

(135) a. Fortunately, the fire did not break out.
    b. Surprisingly, the books sell poorly.

Rightly is not an agentive adverb and yet it must occur in sentences with agents. Wisely, barring cases of extreme contextualization, can be looked upon as an agentive adverb and hence only occurs in agentive sentences.

So far I have been discussing how adverbs are constrained in their movement. I have two observations to make about how adverbs-qua-higher predicates are formed by the adverb-formation rule. There are higher predicates whose predicative structures meet the condition on the adverb-formation rule and yet may not undergo it. Many of these predicates, as Zwicky (1970) points out, are semantically contrary to and syntactically negative of those that may undergo the formation rule. Note the contrast between possible: impossible; common: uncommon; usual: unusual; necessary: unnecessary.

In (136)

(136) a. It is probably true that Max committed suicide.
    b. It is necessarily clear that John will lose his bid for a second term.

the higher predicates occur at two levels of structure, but only the highest predicates probable and necessary may ultimately become surface adverbs. Sentences in (137) are impossible.

(137) a. *Probably truly Max committed suicide.
b. *Necessarily clearly John will lose his bid for a second term.*

In general, no two sentence adverbs that come from the same deep structure configuration may occur in a row, although occurrences of two VP adverbs in a row is a familiar enough phenomenon.

In summary, I have shown that adverbial movement appears to be subject to joint constraints of at least two different sorts: 1) major syntactic breaks in the derived structure and 2) command and precede relationships between the logical element not and adverbs. The study reveals that the position between the verb and prepositional object is a major syntactic break, for VP adverbs can appear there. To each sort of constraint, there are a number of exceptions. Some of these seem rather inconsequential; others suggest that the notion of structural complexity of the complements of object NP's figures a role in adverbial movement.

Adverbs may be optionally incorporated into the lower (i.e., the main) predicate, subject to constraints whose nature I do not know, but most not be moved outside of the clause with which it is in construction. Ross (1967) has shown that adverb-preposition is upward-bounded, as the following sentences show.

(138) I promised that John would do it \[
\{ \text{tomorrow} \\
\text{slowly} \\
\text{again} \\
\text{periodically} \\
\text{carefully} \\
\text{undoubtedly} \}
\]

(139) *Tomorrow I promised that John would do it \[
\{ \text{slowly} \\
\text{again} \\
\text{periodically} \\
\text{carefully} \\
\text{undoubtedly} \}
\]
I have also dwelled at some length on the interplay of the interpretation of adverbs and their surface order. In most cases, the meanings of adverbs can be computed directly as a function of the surface positions they occupy. In some cases, the meanings of adverbs are shown to be related to the specificity of the NP and the nature of the main verb in the sentence.
CHAPTER FIVE

CONCLUSION

By way of conclusions, it should be pointed out that both performative adverbs and adverbs of viewpoint may be thought of as simply those adverbs that 'modify' speech act verbs and generally require the deletion of the subject, and the speech act verbs in the performative clause when the adverb-formation rule applies. Adverbs like to tell the truth, to put it bluntly, to change the subject result from infinitivizing the performative clause and phrases like in my opinion are the result of adverbializing the whole performative clause. Incidentally is a state-of-mind adverb in the performative clause, equivalent in meaning to casually in the sub-performative clause, the only difference being that incidentally is only used at the performative level and casually, on the other hand, is only usable at the sub-performative level.

One may ask what adverbs may or may not occur at either the performative or the sub-performative level or both. Since speech act verbs are just an infinitesimal subset of verbs, there are, it is clear only a tiny subset of adverbs that may occur only at the performative level. Adverbs having to do with the speaker's state of mind may also occur at the sub-performative level. There are only a handful of manner adverbs which enjoy the privilege of appearing in the
performative clause, e.g. *briefly*, *roughly*, and *strictly*, etc. Most manner adverbs (e.g., *slowly*, *rapidly* and *with a limp*) never do. I have no idea why this should be the case.

I have remarked earlier that attitudinal adverbs may not occur in (ordinary) interrogatives, for which there is a straightforward semantic and syntactic explanation. These adverbs, however, may appear in tag questions, such as (1).

(1) Mary is surprisingly tall, isn't she?

The tag cannot come from something like (2), since (2) is strange.

(2) ? Isn't she surprisingly tall?

But then the formation of tags requires a different analysis. At present I have no explanation why the grammatical status of (1) should differ from that of (2).

It was noted that a sentence like (3) has a paraphrase like (4).

(3) Mary is surprisingly tall.

(4) It is surprising that Mary is \{ so tall as tall as she is \}.

The appearance in (4) of a deictic *so*, or the comparative phrase suggests clearly that *surprisingly* is a degree adverb. Attitudinal adverbs can be used as degree adverbs, as observed earlier. Many semantic negatives of epistemic adverbs are chiefly used as degree adverbs, in this sense. Thus (5) and (6) are synonymous.

(5) The discussion was unnecessarily complicated.

(6) It is unnecessary that the discussion was so complicated.

Suppose we derive (3) and (5) from the structures underlying (4) and (6) respectively, a rule would be required to replace the *so* in the comparative phrase with a degree adverb. (i.e., the degree adverb would come in to fill in the slot occupied by *so* in the comparative phrase).
Obviously, the existence of such a rule requires further justification.

Current practice among grammarians is to consider stative locatives as arguments of predicators, i.e., they are introduced into underlying structures dominated by an NP node. Can we handle directional locatives in the same way? It is not at all clear whether such directional locatives as to the bridge, in (7) should be an argument of the predicate

(7) He walked to the bridge.

walked or whether they should be introduced as VP adverbs. If the latter is the case, the deep adverb category I proposed in chapter three would come in handy. Note that much of what I have termed VP adverbs have been handled by Fillmore (1971) as coming from deep structure cases, and these cases are, unlike Agent, Objective and Experiencer, optional, and take no part in rules which select surface subject, object and elements in focus. The optionality seems to me to suggest that the deep structure status of these VP adverbs are at least not yet completely settled.


