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Studies in Lexical Relations

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STUDIES IN LEXICAL RELATIONS

by

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CONTENTS (Continued)

I. INTRODUCTION

I.1 Relevance to Linguistic Theory, Intention and Scope

In generative grammar[1] the connection between semantics and syntax has always been a difficult problem to elucidate clearly. The theory of Katz and Fodor[2] posits for the semantic component of a grammar rules which utilize the constituent structure of the sentence, building up an interpretation of the sentence from the parts to the whole. These rules are called projection rules. The authors state: "The semantic interpretations assigned by the projection rules operating on the grammatical and dictionary information must account in the following ways for the speaker's ability to understand sentences: they must mark each semantic ambiguity a speaker can detect; they must explain the source of the speaker's intuitions of anomaly when a sentence evokes them; they must suitably relate sentences speakers know to be paraphrases of each other."

In this thesis we will propose a system which comes close to what might be called a derivational semantic theory, as opposed to an interpretive one. We would acknowledge the necessity for interpretive semantics and would contend that the theory of Katz and Fodor does satisfy the claims for a semantic theory stated above. However, our purpose will be to show that these functions for a semantic theory do not complete the picture and that explanations of other phenomena related to semantics can be effected from a different point of view. Essentially we will be concerned with handling some of the more consistent facts about the relationships between the semantics of the kernel sentence and its syntax. We intend to show an underlying consistency in the constructions studied which can best be handled by derivational means. For example, we will discuss the fact that the subject of the sentence if animate may be a willful agent of the action described. Also, we will show various consistently recurrent semantic relationships among parts of the sentence and among different sentences, which can best be explained by the existence of some underlying pattern of which the syntactic structure is a particular manifestation.

Evidence will be given for the existence of a system which forms the basis for both semantic and syntactic interpretation. In other words, we will discuss the possibility for a derived system of formatives which themselves constitute structures that are to be semantically interpreted, but which also underlie the final syntactic form. We may then refer to a syntactic interpretation of this underlying structure.

A level at which semantic interpretation will be relevant will therefore be deeper than the level of 'deep structure' in syntax.[3] This level will be derivationally prior to the manifestation of lexical items in the generated string, the appearance of which will constitute the syntactic interpretation. Thus the underlying structures generated before semantic and syntactic interpretation we will term the prelexical structure.

Chomsky has stated: "There is no aspect of linguistic study more subject to confusion and more in need of clear and careful formulation than that which deals with the points of connection between syntax and semantics. The real question that should be asked is: 'how are the syntactic devices available in a given language put to work in the actual use of this language.'"[4] For the constructions which will be studied in this thesis the relationship between semantics and syntax will be treated. This will be done by means of relating both to a prelexical structure. The question which we will attempt to answer is somewhat different from that above, however. Rather it is the question "In what way are the syntactic patterns in a given language connected to relationships of meaning." We will consider semantics not only the description of the use of words. We will also concentrate on meaning relationships among the elements of one sentence and among different sentences, thereby studying the semantic

patterns in sentence structure. These patterns will be reflected in the patterns of the prelexical structure.

We will also contend that semantic notions are of a decided use in syntax. Since our prelexical level will be as relevant to semantic as to syntactic interpretation, we will have a formal basis for establishing the relevance. We wish to show that syntax should not be considered as a formal system which can be studied independently of semantics. Various patterns in a sentence must be considered of semantic relevance as well as of syntactic. This will be shown, at least for the limited descriptive field that we will be concerned with, by demonstrating the existence of a prelexical system which has properties that are basic both to the syntactic form and the semantic relationships. Syntax and semantics will have the same representation at the prelexical level.

The prelexical system, along with the interpretive semantic component and the means by which the syntactic form will become manifest will elucidate the manner in which form and function are inter-related in language. This system need not be specified as specifically semantic or syntactic. The observation that as syntactic description becomes deeper, semantic phenomena fall increasingly within its scope, always raises the question as to where to draw the line. A prelexical level such as here proposed, however, will remove this difficulty somewhat in establishing a neutral basis for both of them. We will show instances in which syntactic constraints which appear also to be semantically explainable informally, can be explained by constraints on the prelexical system and the rules that transform this into a syntactic form.

Our approach will be to investigate the nature of words and their relationships among each other semantically and syntactically. It has become apparent that the verb is the principle variable in sentences upon which the syntactic form of the sentence depends. Consequently we will investigate the lexical relationships among verbs. We will limit ourselves to verbs which refer to relatively concrete situations, such as possession, position, identification, etc., although at times we will extend the analysis to abstract cases.

It will be by means of specifications in the lexicon that the syntax of particular verbs will be established. These specifications will indicate the environment for a verb in terms of the formatives generated in the prelexical structure. Syntactic constraints or environmental specifications will then merge with semantic reasons for the way in which the verb is used. Since the prelexical structure itself is what becomes semantically interpreted, environmental specifications of lexical items in terms of them becomes indistinguishable from a specification of the meaning of the lexical item. We shall in fact assume that much of the meaning of the word is specified in this way.

It should be noted that the output of the prelexical system proposed here is not far from Chomsky's pre-terminal string.[5] The essential difference, however, is that we shall consider it to be generated by a much simpler rewriting system, and shall also attribute to it greater semantic significance. The manner in which lexical items are mapped onto the generated string, yet to be described, is also different.

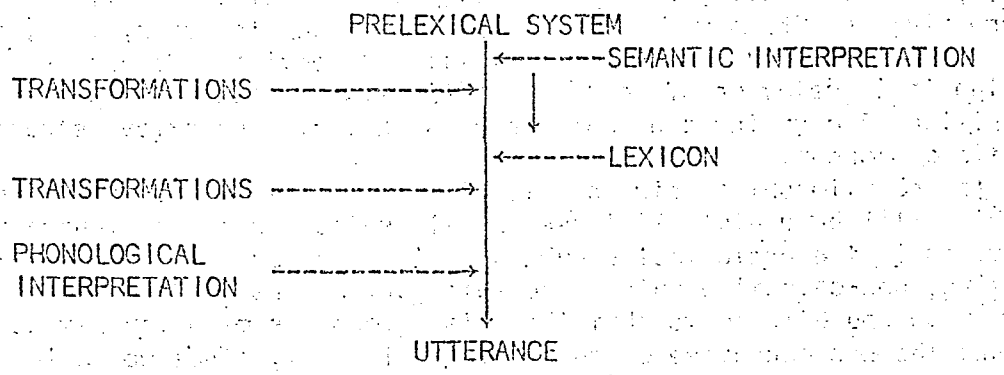
Thus every lexical entry will be analogous to a rule by which the particular phonological form will be mapped onto the appropriate string in the prelexical structure. The meaning and/or the environment specified in terms of formatives of the prelexical structure will be completed for a given lexical entry by whatever idiosyncratic specifications of meaning there are for these words. These will consist of elements which do not pattern sufficiently to be included in the prelexical structure. Such idiosyncratic information will be added to the generated string at the same time the phonological form is mapped on. It will of course be a necessary part of the semantic interpretation, and conse-

quently it too must enter the semantic component.

It will be seen that there are transformations which we will desire to effect before the lexical items are mapped on. The question as to the place of transformations in this system has not been the principle investigation. We will assume that there are some which apply before and some which may apply after the appearance of specific lexical items.

The above together with the phonological interpretation whose output is a representation of the utterance in phonetic features complete the picture proposed here for the structure of a grammar. Below is a schematic representation of this:

Fig. 1.1



So-called 'deep structure' appears immediately after the application of the lexicon in the diagram. Surface structure appears after the application of all transformations.

The prelexical system, it will be seen, will have the virtue of consisting of context free constituent structure rules. Structures will be freely generated here, environmental restrictions and conditions being stated in the lexicon for each item. The semantic component may interpret some strings as impossible due to certain idiosyncratic features of the words in question.

It is likely that that which is generated in the prelexical system will have validity beyond the language which is being studied, i.e., English. This is so because of its depth and the reasons for its construction--to go deeper than the syntactic form.

In fact it might be the case that a particular syntactic form is itself merely a reflection of some type of underlying structure. The structure of sentences, their syntax, may turn out to be an overt manifestation of such an underlying system.

1.2 Means of Discovering the Prelexical Structure

In this section we will indicate some of the ways in which evidence will be found for the prelexical structure.

Sentences which paraphrase each other may have the same prelexical structure. It is of course not true to say that all sentences which paraphrase each other have the same prelexical structure, since such an identity may be explainable by some sort of reduction or interpretation. However, in certain instances interpretive semantics cannot handle the situation except in an ad hoc manner. Chomsky[6] discusses cases in which a more abstract notion of grammatical function than the one represented in deep structure is needed. These are such sentences as

1) John strikes me as pompous - I regard John as pompous.

2) John bought the book from Bill - Bill sold the book to John.

In such cases the clear relationship cannot be described in transformational terms as can

3) John is easy for us to please - It is easy for us to please John.

In sentences 1) the relation between John and the first person singular pronoun is the same in each, yet in each their roles as subject and object are reversed. Similarly in sentences 2) John and Bill have some similar relationship to each other, yet syntactically on the deep structure level they will be represented differently. As Chomsky notes here the contextual features, i.e., the syntactic form, are somewhat independent of semantic properties. We propose, however, that the interpretation of semantic similarity between these pairs is due to the recognition of certain identical features in their prelexical structures by the semantic component.

Also relationships between sets of sentences that are not paraphrase relationships will be useful, if these relationships can be attributed to simple variations in the prelexical structure. In some instances, for example with causative, non-causative pairs, the same word may be used in either case. Such a situation would indicate that there is a formal similarity between the causative and the non-causative on the prelexical level, since we would want to say that the word is the same word, not a homonym, in whichever situation it is used. That is, we would want to give it the same lexical entry, using appropriate symbolism to represent the options that account for the variations in use. Such a word as roll would be of this type:

4) John rolled the ball down the hill. (causative)

5) The ball rolled down the hill. (non-causative)

Sometimes, for this, different words are used, such as raise-rise. And there are verbs which are only causative or non-causative without there being any specific pair: e.g., pull, flow. This indicates that no rule is operating, so that we can be justified to use a lexical approach.

Similar instances to this are cases in which one verb can be used to cover a certain syntactic domain, whereas another word will only cover a portion of it. We can study those domains which occur for the same word in hopes that its domain may represent some simply characterisable factor in the prelexical structure. Again, if we have the same word in each case of its use, this would hopefully be the case. For example

6) John forced Bill into the room. - forced Bill to go.

7) John pushed Bill into the room. - *pushed Bill to go.

In one case we would say the same verb can be used to cover a more general ground, which would give a clue as to the nature of the prelexical structure.

The set of verbs possible in a given domain should be representable as different manifestations of what can be generated in the prelexical structure. That is, in some sense the total set of possible verbs of a given language should be characterized by the prelexical structure. In other words, the

prelexical structure would express the total range of possibilities. It would characterize whether or not a set of verbs is complete with respect to some subgrammar. By examining the set of possible verbs within a given domain, arbitrary at first, we can seek to find the broadest circumstance in which all others are particular instances. The prelexical structure must be set up to adequately characterize the whole set of verbs within the domain, the broadest circumstance therefore indicating the breadth of the prelexical structure. Particular verbs which have narrower uses will have to be characterizable in succinct terms, however, according to the formatives of the prelexical structure, which will give us clues as to its constitution.

The distribution within a sentence of various elements in a sentence may indicate the possibilities inherent in the prelexical structure. For example, if a certain element does not occur in a sentence it may be due to a restriction in the prelexical structure and the rules for mapping lexical items onto it. It may be that we do not have a grammatical sentence in the string

8) John bought a book to Alice.

because we can have no more than one prepositional phrase with to in such a sentence, the prelexical structure of the above having 'to John' in it already.

Similarly we may perceive certain syntactic phenomena that can be explained by rule only in an ad hoc manner, since it pertains to so few verbs, but can be handled by considering a mapping onto a prelexical structure in a natural way. For example, the transitivity of pierce in 'pierce the paper' may be explainable by the mapping of the lexical item pierce onto a string which also includes through, or some prelexical representation of through.

In succeeding chapters we will bring forth such evidence as this, demonstrating the descriptive power of utilizing formatives in the prelexical structure to explain the semantics and syntax of particular words. In later sections we will discuss the prelexical structure itself, and more explicit formalizations of its nature.

2. THE GRAMMATICAL PROCESS OF INCORPORATION

2.1 The Manifestation and Formalization of Incorporation

Evidence for the presence of some sort of prelexical structure is given by certain verbs which appear to be characterizable in terms of more elementary units. For example, pierce may or may not have the preposition through following it.

1) The pencil pierced the cushion.

2) The pencil pierced through the cushion.

However, note that when through does not occur, it is clearly implied. No other preposition is so clearly implied.

The fact that a sentence not containing through is not broader in meaning than the same sentence without it can be seen by the fact that we cannot have the question answer pair:

1) *Did the pencil pierce the cushion? No, but it pierced through it.

This is similar to the impossibility of

2) *Does John have a coat? No, but he had a red one.

It is possible to have a question answer pair if the correction is a broader statement however.

3) Does John have a red coat? No, but he does have a coat.

To see whether or not the sentence with through is broader than that without it, consider the pair:

4) Did the pencil pierce through the cushion? No, but it did pierce it to some extent.

This pair is possible. It may be due to the ambiguity of the word through, which may have the meaning 'all the way through'. Since it is an ambiguity, note that we can contrast the implied 'all the way' with an overt 'to some extent' directly in:

5) Did the pencil pierce through the cushion? No, but it did pierce through it to some extent.

These observations clearly show that it is not possible to think of the word through as being deleted here. (See Section 2.2.) It should not be possible to decrease meaning possibilities by transformations. Meanings can only increase, by underlying forms merging at the surface. It is necessary to look toward an underlying level, at which a preposition, which we will call THROUGH, is manifest. It will not do to say that a particular morpheme homonymous with through is deleted, since this obscures the similarity between the two through's. Rather we should want to say that the ambiguity of through is not due to separate lexical entries, but due to an optionality in its possible meanings. If this optionality is expressible by optional underlying formatives which define through, then the matter will be considerably simplified. We shall return to this below. However, note here that we intend for pierce that the formative which is implied when pierce is used as a transitive verb is THROUGH and not something like ALL THE WAY THROUGH, which we use to represent informally the prelexical formatives standing for the other use of through.

No other prepositional phrase can stand in the place of a through-phrase, although, if we have a through-phrase, we may have other phrases in addition. This is true whether or not the through is overtly absent.

6) *The pencil pierced between the pages.

7) The pencil pierced through the book between the pages.

8) The pencil pierced the book between the pages.

Note that our discussion of through at this point has been restricted to the prepositional usage of it and has not been involved with the adverbial usage, without an object. For example, in the sentence

9) The pencil pierced through.

we have the adverbial usage.[7] This through also cannot merely be implied but must be present overtly, since we cannot say:

10) The pencil pierced.

In a sentence such as

11) The pencil pierced the book through.

we have the prepositional phrase with the preposition somehow absent followed by the adverb. The adverb takes the place of a through-phrase and may therefore be considered actually to stand for a prepositional phrase whose preposition is THROUGH, or the modification of it discussed above. Thus the adverb in 9) satisfies the necessity to have a through-phrase in the environment. We have the sentence:

12) The pencil pierced through between the pages.

whereas without the adverb, or a prepositional phrase, we would have a non-sentence.

Instead of deletion for these phenomena we shall use a process which we shall call incorporation. This will refer to the replacement of elements in a prelexical string by the phonological form of lexical items.

Pierce obligatorily has a through-prepositional phrase in its environment immediately after the verb. And the preposition through is optionally incorporated.

With respect to syntax, pierce (vs. pierce through) behaves like any other transitive verb (vs. a verb with a prepositional phrase adjunct). For example, we can have the passive when through is incorporated:

13) The paper was pierced by the pencil.

But in

14) The paper was pierced through by the pencil.

the through is not the preposition but the adverbial particle as in

15) The pencil pierced the paper through.

To see that we must have the adverbial particle here, note that with the preposition it is possible to say

16) The pencil pierced through the cushion but stopped half way.

but not with the adverbial particle:

17) *The pencil pierced the cushion through, but stopped half way.

The adverbial particle, unlike the preposition, must imply 'all the way through' if unmodified. The object of the preposition through cannot become the subject of a passive ordinarily:

18) *The tunnel was run through by John.

We shall establish the following conventions. Any formative of the prelexical string will be written entirely in capitals. For example, we will write THROUGH for the preposition which becomes through. Sometimes it will appear that those elements which we had previously decided were formatives of the

prelexical structure could be further analysed. Such a discovery will mean that all previous and subsequent uses of the formative are to be considered in this light. For example THROUGH may in part be analysed as FROM ONE END TO THE OTHER. This notation is not meant to be an exact representation of what we have on the prelexical level. We assume that it will always be possible to make it precise. For abbreviation, we may identify elements of the prelexical structure by using a less analytic representation, even though a deeper analysis has been discovered.

A more precise notation will be used to represent a prelexical formative in terms of semantic features. For example, a simple, very general verb of motion, such as fly, representing a transition of position, will be written as a set of features as follows, omitting idiosyncratic information about the kind of motion involved:

L-1) /fly/ in env $\dfrac{\text{V, Motional}}{\text{Positional}}$

The above means that fly is in the environment simultaneously only with the verbal node. There is no incorporation of part-verbal elements.

The phenomenon of incorporation itself will be represented straightforwardly in the lexicon. We will simply state the event of incorporation by giving the incorporated element as a part of the simultaneous environment of the lexical item. Thus we may write for pierce:

L-2 /pierce/ in env $\dfrac{\text{V, Motional}}{\text{Positional THROUGH}}$

The above is a part of the lexical entry for pierce. it is also a rule which says that we may map the phonological string /pierce/ onto the prelexical structure indicated above the underline, maintaining its verbal status. The underline is the usual notation for specification of the position of an element within its environment.

If the above were the only entry for pierce, it would be indicated that pierce obligatorily incorporates through. However, as seen, this is not the case. However, if through is not incorporated it must be in the environment following the verb. Consequently we have in addition to the above for pierce:

L-3 /pierce/ in env $\dfrac{\text{V, Motional}}{\text{Positional}}$ THROUGH

which indicates that through in this case is in the syntactic environment following the verb. We can combine these two entries by using parentheses; we thereby capture the fact that the incorporation possibilities and the elements in the environment are not independent conditions. Thus we may write simply

L-4) /pierce/ in env $\dfrac{\text{V, Motional}}{\text{Positional}}$ $\dfrac{\text{(THROUGH)}}{}$

Note that we have placed the parentheses about the underline, which formally gives us the desired result. Essentially we state by this that THROUGH is obligatorily in the environment, which may mean that it is incorporated (i.e. in the environment simultaneous with the lexical item) or that it must follow the lexical item.

As noted the adverb through satisfies the environmental restriction to have some through-prepositional phrase. Thus the adverb is probably THROUGH NP,

where NP is some undefined noun phrase and THROUGH is the preposition. The adverb, i.e. the whole prepositional phrase, cannot be incorporated, only the preposition. We have:

19) The pencil pierced through.

but not

20) *The pencil pierced.

For through, then, we would have either THROUGH or THROUGH NP, which when abbreviated gives the lexical entry for through:

L-5 /through/ in env THROUGH (NP)

This specifies that it is either a preposition, by definition, before a noun-phrase, or a prepositional phrase incorporating the noun-phrase.

We noted, however, an ambiguity in through, one meaning being 'all the way through', or something to the effect. 'All the way' is essentially a measure phrase that occurs before most prepositions, such as 'two feet through'. It is natural to distinguish between these two uses of through by admitting a single entry into the lexicon with the option of incorporating whatever prelexical formatives result in 'all the way'. We shall represent this by ALL THE WAY. These two uses of through must be based on a distinction between the presence and absence of some formative, and not merely on interpretation, since through as noted, can be used to contrast with through to some extent.

Thus the lexical entry for through will be as follows:

L-6) /through/ in env (ALL THE WAY) THROUGH (NP)

This statement represents the fact that having generated something like THROUGH or ALL THE WAY THROUGH in the prelexical string, the phonological form /through/ may be mapped onto ALL THE WAY THROUGH or just THROUGH. ALL THE WAY need never be present. The underline indicates the position of the lexical item with respect to prelexical formatives. The fact that the adverb through when unmodified, unlike in two feet through, always means 'all the way through', has not been treated.

If we consider the statement regarding the environment of the lexical item, whether simultaneous or peripheral, as also a statement of certain characteristics of the meaning of the word, then we have united the statement of incorporation, environment, and meaning in a natural fashion.

The notation we have chosen permits some other possibilities besides optional incorporation of an element obligatory in the environment. Thus for example we can have no parentheses at all, which indicates that an object is obligatory in the environment, but obligatorily incorporated. For instance, we have the verb cross, which would have the lexical entry:

L-7) /cross/ in env V, Motional Positional ACROSS

This implies that across is obligatorily incorporated in the verb. Thus we cannot say:

21) *John crossed across the street.

Nor can we have the adverb across, which, as above, is probably ACROSS NP:

22) *John crossed across.

However we can say

23) John crossed the bridge.

which is incorporation of the preposition across. We can also have

24) John crossed over the bridge.

25) John crossed through the field.

26) John crossed from one side of the country to the other.

These must be considered as incorporation of the adverb across, i.e., ACROSS NP. Then compatible prepositional phrases may follow as in the more analytic:

27) John went across over the bridge.

28) John went across from one side of the country to the other.

Note that pierce doesn't incorporate the adverb through, but does incorporate the preposition through. However cross incorporates the preposition and the adverb obligatorily. Thus we can have

29) John is crossing now.

Thus in addition to the environment above for cross we have

L-8 /cross/ in env | V, Motional Positional ACROSS NP

It is now possible to combine these two for the lexical entry. Thus

L-9) /cross/ in env | V, Motional Positional ACROSS (NP)

Note that according to the above, if incorporation of the preposition across is the effected option, then the adverb across cannot be used since the preposition of which it is composed has been incorporated. In this situation the procedure will block.

We should make here the formal claim that the set of objects of a verb which incorporates some preposition is a subset of the set of objects which the preposition takes. For cross it seems that the set of objects is identical to the set of objects of across. For example, we may even have

30) The wire crossed the house.

just as we have

31) The wire goes across the house.

In the sentence

32) The dog ran across the room.

the meaning is more clearly that the dog kept precisely within the bounds of the room, going from one side to another, whereas in

33) The dog ran across the bridge.

the meaning may be that the dog ran across, possibly also running to some extent on the land prior to and after being on the bridge. These semantic observations are exactly retained when cross is used.

34) The dog crossed the room.

35) The dog crossed the bridge.

For pierce the set of possible objects is a subset of the set possible as the object of through. This is due to the character of the verb pierce which adds the requirement that the motion be through some continuous object. Hence we can say

36). The arrow pierced the air.

But though we can say

37) The train went through the tunnel.

we cannot say

38) *The train pierced the tunnel.

However, if the word is an object of pierce it can also be the object of through.

A third possibility is optional incorporation of an element that is optional in the environment. Climb is such a verb. Note that we may have several types of prepositional phrases following it.

39) John climbed down the ladder.

40) John climbed into the tent.

41) John climbed along the grass.

42) John climbed up the mountain.

In general then climb simply indicates a kind of groping notion, perhaps using the hands, but in any direction, all prepositional phrases being possible in the environment. However, note that it can be used transitively:

43) John climbed the ladder.

Here there is only the implication of up. There is no necessary implication of up in the previous sentences with the preposition. Even down can be used in the environment.

All this we can take to indicate that if up is in the environment it may be incorporated. Then, if a preposition doesn't appear before some noun, after the verb, it must be that up was incorporated. No other preposition will be incorporated. Hence we have the following for the lexical entry for climb:

L-10) /climb/ in env V, Motional Positional (UP)

This indicates that we have optional incorporation of a preposition which is optional in the environment, abbreviating lexical replacement of only the verbal element, or the verbal element and the preposition. We also have adverbial incorporation in the same optional sense. Thus we can say

44) John is climbing down.

45) John is climbing out.

without any necessary implication of up. But if we say

46) John is climbing quickly.

we most likely have an implication of up. Consequently we also have here an optional NP incorporated. This gives us for climb the modified entry:

L-11) /climb/ in env V, Motional Positional (UP (NP))

We interpret this in the natural way, compounding the options.

In a statement such as climb down, the prelexical string upon which this is mapped is the same as that for go down except for the idiosyncratic features of the kind of motion involved in climbing. But the prelexical string upon which climb up and climb are mapped, the latter without any adverbials or prepositional phrases following, is the same for each. It is a prelexical string which also underlies go up, approximately.

Thus we have seen three types of incorporation. Optional and obligatory incorporation of elements obligatory in the environment, and optional incorporation of an optional element. A fourth logical possibility might be the obligatory incorporation of an element optional in the environment. Suppose it were possible to say 'climb the ladder' with the implication of up, and possible to say all other prepositions, such as 'climb down the ladder', but it was not possible to say 'climb up the ladder', the prelexical UP if present being obligatorily incorporated. This sort of thing would be obligatory incorporation of an element optional in the environment. However such an occurrence could not be readily formalized by our method.

To say that something is optional in the peripheral environment is to say nothing at all regarding the restrictions on the environment. That is, assuming we had a prelexical verb V and a preposition Prep optional in the environment, we would have for the lexical item X, the entry:

L-12) /X/ in env V

However, to say that something is obligatorily incorporated is to say we have

L-13) /X/ in env V Prep

This implies that the only preposition which can occur after V is Prep, which is obligatorily incorporated in X. It is not possible to combine the above two entries with parentheses and get the desired result, because, quite obviously, this implies optional incorporation of an element optional in the environment. It is not possible to say something is obligatory simultaneously and optional in the periphery, because to say something is obligatory simultaneously is meant to exclude its presence in the periphery. However, excluding its possibility in the periphery contradicts saying it is optional in the environment.

This means that in such a case we would be forced to say that the absence of the expected element is due not to incorporation but to deletion. There was only one instance found in which we might desire the absence of a preposition to be due to incorporation but which met this difficulty. (See 7.6.)

2.2 Incorporation and Deletion Compared

We can explain the transitivity of pierce, and to a large extend the set of objects it takes, by assuming that on some prelexical level we have a similar underlying structure to what we would have for go through. Here through is the preposition. We would also have a concise characterization of a significant part of its meaning. Also, the generation of a prelexical string standing for go through is much simpler and has a much better chance of falling within a regular system than the generation of a transitive verb such as pierce directly.

Note, however, that through can optionally appear in the environment of pierce. This would make a further complication if we were to generate the transitive and intransitive pierce by constituent structure rules independently. We might be led to assume by this that through is deleted after pierce by a transformational rule.

However, there is some difficulty with the concept of deletion here. First of all, it seems ad hoc to establish a deletion rule for this one verb, and so few others, like penetrate. This seems utterly to contradict the notion of rule itself, which should be preserved for situations in which a regularity is to be captured. The absence of through with pierce is certainly an idiosyncracy of this word and not a regularity of the language. Naturally there is some problem concerning how regular and pervasive in a language a phenomenon should be before it is considered a rule. However, in this extreme instance it should be clear that the notion of grammatical rule would hardly be applicable.

We propose therefore that pierce should be considered to be a lexical item that may be mapped onto a prelexical string of formatives which corresponds also to the string of lexical items go through. The mapping will leave pierce labeled clearly as a verb rather than a preposition. (See 6.2.)

Such a circumstance will be satisfactory both semantically and syntactically. In general, we will not propose any underlying formatives that do not have definite semantic significance and cannot be represented on the prelexical level, in which all the formatives are semantically significant. In fact we shall consider much of the 'meaning' of a word characterized by the prelexical strings which it may be mapped onto.

A prelexical string will be generated, developing the appropriate formatives. Lexical items will then be mappable onto this prelexical string in accordance with their environmental specifications. These specifications will be in terms of the prelexical formatives, which have an immediate semantic interpretation. That is, the semantic interpretation of groups of them does not involve an analysis of the structures of the individuals into a deeper string of prelexical formatives. Only amalgamation of these formatives is necessary for the interpretation.

It might be argued that incorporation of some particular formative is only a notational variation of specifying a particular deletion rule to apply to the word in question. However, I do not believe this to be the case. First of all, incorporation implies the existence of some regular prelexical structure, whereas deletion does not necessarily imply the existence of such a structure.

The process of incorporation is specifically combined with a prelexical system, and is designed to effect a mapping onto prelexical strings of lexical items. We wish to show that it is efficacious to assume the existence of a prelexical system which generates freely all possible sentence patterns. Such a system will represent the total range of possibilities, and it may be the case that there are lexical gaps with reference to the possibilities generated in the prelexical structure. We contend that a simple process of mapping involving incorporation can explain a great number of the semantic and syntactic properties of verbs. Every verb will represent a special case of the possibilities generated in the prelexical system.

Deletion is not to be construed as such a mapping or to have any relation to a prelexical system.

It is not sensible to talk about incorporation of lexical items, since the lexical items themselves are specified as regards their meaning and use in terms of the prelexical formatives. It does not seem at present reasonable that we should allow mapping of lexical items onto strings of formatives which have already been selected from the lexicon. There seems to be no reason to assume the existence of more than one stage of mapping. Such a system would be much more powerful and would amount to transformationally rewriting phonological matrices. We wish to have an underlying prelexical string upon which incorporation can take place in an unordered fashion. Once incorporation has taken place there is no longer any incorporation with the portion of the prelexical string already covered. However, deletion may be followed by further transformational activity of the same sort.

For example, the deletion of <u>who are</u> from the sentence:

1) John gave to the ones who are poor.

yields

2) John gave to the ones poor.

which is followed by the deletion of <u>ones</u>, to yield finally

3) John gave to the poor.

However, <u>ones</u> cannot be deleted unless <u>who are</u> has been deleted first.

4) *John gave to the who are poor.

These two deletions are separately motivated and they have an inter-dependency and a necessary order. No such ordering or inter-dependency is found for incorporation. For example, there is no ordering between the incorporation of the preposition <u>across</u> and the following noun phrase in <u>cross</u>. Whatever inter-relationship there is between the incorporation of the preposition <u>across</u> and the adverb, or prepositional phrase, <u>across</u>, can be handled naturally by blocking. Incorporating one naturally excludes the possibility of the other.

While deletion may occur to an element while at a distance from the element which signals the possibility of its deletion, incorporation should necessitate

that these two elements be juxtaposed. Thus we cannot have incorporation of through when we have pierce used as a causative, since a noun interposes between the verb and the preposition:

5) *John pierced the pencil the paper.

However, the deletion of to be after think, consider, imagine, believe, regard, and others is made possible by the type of complementation these words may have, yet the subject of be necessarily interposes between the verb and to be:

6) I thought Bill a fool.

7) I imagined Bill unhappy.

For deletion there is no reason to necessitate the deletable element being juxtaposed with the element that ultimately conditions it.

The possibility of marking a lexical item for the occurrence of some transformation such as deletion is a much more powerful tool in the grammar than saying that lexical items are mapped onto some prelexical string, since all types of transformations may just as well be included as possible. Incorporation of this type limits the possibilities to the equivalents of deletion transformations only. Also, deletion transformations would not themselves reflect the property that the possibilities for incorporation are intimately tied up with the meaning of the word. We have set up the marking of lexical items in such a way as to do just this. That is, the statement of certain properties of the word is inseparable from the statement of its incorporations and the statement of certain of the items which must occur in the environment, since it is written in terms of prelexical formatives which have immediate semantic significance.

While incorporation into some element should be reserved for items which are idiosyncratically absent for that particular element, deletion should be regarded as a rule which effects the absence of some item with considerable regularity depending on environment. For example, a reasonable case of deletion would be the deletion of who is in

8) The man on the porch is staring at me.

which is by a regular rule in English, applying with considerable generality to relative clauses. Similarly, the deletion of by someone in passive sentences leaving a string such as the following is a regular occurrence.

9) John was killed yesterday.

Incorporation reflects the meaning of the word as well as having syntactic effects, since the incorporated elements may themselves determine much of the meaning of the word.

The deletion of to be in such words as consider, already noted, is of considerable generality and doesn't reflect any particular meaning of consider.

Prepositions are generally deleted before infinitival complements. In the sentence

10) John tends to waste time.

we really have a preposition followed by a noun clause. That this is so can be seen from the possibility of saying

11) What John tends toward is to waste time.

If we had incorporation we should be able to say

12) *What John tends is to waste time.

which is not possible. Obligatory deletion of for occurs before infinitival complements in

13) John strove to become a doctor.

14) *John strove for to become a doctor.

15) What John strove for was to become a doctor.

16) *What John strove was to become a doctor.

17) John worked to improve his skill.

18) *John worked for to improve his skill.

19) What John worked for was to improve his skill.

20) *What John worked was to improve his skill.

Incorporation when it occurs for a verb is relatively independent of the syntactic construction, in which the incorporating verb appears.

We have optional incorporation for try,

21) What John tried (for) was to become a doctor.

which is obligatorily deleted before the infinitive complement:

22) *John tried for to become a doctor.

Attempt obligatorily incorporates for, in contrast to try. We must say

23) What John attempted was to become a doctor.

and not

24) *What John attempted for was to become a doctor.

We assume for is incorporated in attempt to account for the semantic similarity between it and try.

Similarly want, need, desire, and expect all obligatorily incorporate for:

25) *What John wanted for was to become a doctor.

We can say for wish

26) What John wished for was to become a doctor.

but not

27) *John wished for to become a doctor.

because of the obligatory deletion but optional incorporation of for. Naturally, when concrete nouns can be used as objects of for, the for is not deleted but note that the same incorporation tendencies are manifested. Again we point out that incorporation is relatively independent of the particular syntactic construction in which a word is used. It is a property of the word. We have

28) John wants a book.

29) *John wants for a book.

No incorporation, but obligatory in the environment:

30) *John yearns a book.

31) John yearns for a book.

Optional incorporation:

32) John wishes a book.

33) John wishes for a book.

Consequently we see that deletion and incorporation are distinct processes in grammar. In the above we see an interesting interplay between these processes. We shall see further examples of the distinction between deletion and incorporation in the following text.

2.3 Further Examples of Incorporation of Prepositions

We have seen in the previous section some uses and examples of prepositional and adverbial incorporation for the verbs pierce, cross, climb. We will now indicate further manifestations of incorporation of this type.

Penetrate may be construed the same as pierce, optionally incorporating through. Pierce may be used in a causative sense:

1) John pierced the pencil through the paper.

Here it is not possible to incorporate:

2) *John pierced the pencil the paper.

3) *John pierced the paper the pencil.

We may assume that this is prevented by the order of the nouns and phrases which may not be altered. The through-phrase must follow the noun pencil (the thing piercing), and therefore doesn't follow the verb here since this noun interposes. This will follow from the formalization discussed in section 6.2.

Similar to cross is the causative verb transport. But while transport does imply across when no preposition is present, across itself may be present.

4) John transported the car.

5) John transported the car across (the river).

The adverb is only optionally incorporated. We can of course have other compatible prepositions:

6) John transported the car over the ocean.

which are as acceptable as

7) John took the car across over the ocean.

Hence we can have for transport, without regard to its being a causative.

L-1) /transport/ in env V, Motional Positional (ACROSS NP)

We consider transport to incorporate across optionally as an adverb, which is obligatory in the environment.

Deliver differs from bring in the sense that a point of origin and of destination is implied as having significance:

8) John delivered the letter.

9) John brought the letter.

Deliver implies that the letter came from someone to another, whereas this is not necessarily implied in bring. Consequently we can say on purely semantic grounds that deliver incorporates the adverb across, which itself has this idea of transference of position. This will be incorporation of the adverb, hence the whole prepositional phrase. Roughly we would then have:

L-2) /deliver/ in env V, Motional Positional ACROSS NP

In which across is obligatorily incorporated. Compare this to transport.

Similar to the above are the words jump, leap, hop. All of these can be used transitively in a sentence such as

10) The horse jumped the fence.

This sentence implies 'over the fence'. When other prepositions are used over is not necessarily implied:

11) John leaped through the tunnel.

does not mean

12) John went over through the tunnel.

These words, other than optionally incorporating over carry with them some connotation of leaving the surface. Other than this there is no inherent notion of up, down, to the side, etc. Thus 'leap the fence' doesn't mean 'go over the

fence' precisely, although it implies it. Jump and the other words necessarily implies a leaving the surface, whereas this is not implied with go. Jump can in addition refer to motion in a vertical line, whereas leap and hop necessarily imply some horizontal motion.

We wish to point out here only that these words do incorporate optionally over, which is optional in the environment.

L-3) /leap/ in env → V, Motional Positional (OVER (NP))

We assume that here the adverbial over may also be incorporated.

Note that the incorporation of over is not the whole story for these verbs. We can say

13) The dog leaped over the line.

but not

14) *The dog leaped the line.

The object of the preposition must be of significant height with respect to the subject.

The words through, across, and over all imply in these usages a transition from one place to another. They have different aspects, however. For through the object of the preposition must have an inside. In fact the object of through would be the object of in. We might say that through is 'from one side to the other in', having essentially a sequence of prepositions. Across, however, has the features of on, a transition of position on a surface. The incorporation of across in traverse, and not through, explains why we cannot say

15) *The pencil traversed the tree.

We are not likely to say 'the pencil went across the tree'. However through is natural here and hence pierce can be used. That leap doesn't incorporate through can be seen by the impossibility of saying

16) John leaped the tunnel.

in the appropriate sense. Similarly, that pierce doesn't incorporate over or across can be seen by the impossibility of

17) *The bridge pierced the river.

in the appropriate sense.

Similar to climb is ascend and rise. Ascend and rise differ from climb in that we have up obligatorily in the environment:

18) *John ascended down the stairs.

19) *The balloon rose down.

It seems for ascend that we can have up as a preposition, but not as an adverb:

20) John ascended up the mountainside.

21) *John ascended up.

This would seem to indicate that we have obligatory incorporation of UP NP, the adverb, but optional incorporation of UP, the preposition, which is a very strange situation. This raises a difficulty in formalization in fact. If we have optional incorporation of the preposition obligatory in the environment we would write (UP) NP. However if we have obligatory incorporation of the adverb then we must write UP NP. But these contradict each other. Obligatory incorporation cannot go along with parentheses.

The difficulty is not with the theory, however, but with our understanding of the preposition and adverb up. It is not that the adverb is derived from the preposition with some understood object, but rather the preposition is derived from an adverb. Basically we have an adverb UP or UPWARD (meaning 'to' or 'toward the high place'), which is compounded with a preposition such as on or along, just as for across. In other words 'up the mountain' means 'upward on the mountain'.

Note that while 'to go in' means 'to go into some place', it is not true to say that 'to go up' means 'to go up something', necessarily. While up alone indicates the goal of the motion as being some higher point, in the same sense that the object understood in the adverb in is the goal of the motion, it is not true that the object of the preposition up represents the goal of the motion as does the object of into. (See 4.6, for expressions of goal.) Rather the object of up as a preposition represents the object along which the traveling is done. This is the reason for our on in along.

Thus, if we conceive of ascend as having in its environment obligatorily the sequence UP ON NP in which UP is the adverb, then if this sequence is optionally incorporated we will omit the possibility of having the adverb UP appearing alone in the environment. Thus we write for ascend:

L-4) /ascend/ in env V, Motional Positional (UP ON (NP))

Since UP ON is the preposition up, we can have this following the verb. But since UP is the adverb up we shall not be able to have this following the verb, it either being incorporated in the preposition or in the verb.

This analysis will force us to write UP ON in place of UP for climb. Rise differs from ascend, however, in incorporating only the adverb up:

22) The balloon is rising (up).

23) The package rose (up) on the conveyer belt.

24) The package rose up the conveyer belt.

25) *The package rose the conveyer belt.

Consequently we have for rise:

L-5) /rise/ in env V, Motional Positional (UP)

in which UP stands for the adverb.

Note that the distinction in the environment possibilities and incorporations between rise on the one hand and climb and ascend on the other, follows

the semantic distinctions. Consider the following sentences.

26) John is ascending quietly.

27) John is climbing quietly.

28) John is rising quietly.

Clearly the first two imply that John is going up along some object or path such as stairs, a wall, a plank. However the sentence with rise does not imply any such object on which the rising is taking place. Consequently the sentence is somewhat ludicrous, implying that John is floating upward.

Again our semantic and syntactic facts are explained together by means of environment specification in terms of a prelexical structure and the process of incorporation of elements in that structure.

Fall parallels rise and descend parallels ascend with the adverb DOWN, meaning 'to a lower place'. We cannot say

29) *John descended down.

But we can say

30) John descended (down) the stairs.

For fall we have, paralleling rise:

31) John was falling (down).

32) John fell down through the chimney.

33) John fell down the chimney.

34) *John fell the chimney.

Raise, elevate, lift, drop, lower are causatives which incorporate the adverb UP or DOWN.

Sink differs semantically from fall in one way in that it implies a significant point of departure. In other words, we incorporate not only down(ward) but FROM NP indicating the source of the motion, 'downward from some place'. For example 'the stone has finally sunk' may mean 'the stone has finaly gone down from the surface'. Simply 'the stone has gone down' is ambiguous.

Other incorporations may be seen with return, withdraw, retract, recede. Return incorporates back, a similar adverb to up and down. Thus compare the sentences:

35) The ball returned to Bill.

36) The ball came back to Bill.

But we cannot say

37) *The ball returned back to Bill.

Back is obligatorily incorporated. The other verbs mean go back or go backward.

Hence compare the sentences:

38) The mole receded into its hole.

39) The mole went backward into its hole.

The contrary adverbs are incorporated in such verbs as advance, proceed, progress, which have the meaning of go forth or go forward.

Enter incorporates the adverb in or the preposition into, optionally, but always implies them.

40) John ran into the house.

41) John entered the house.

42) John came in.

43) John entered.

Since the adverb we shall write as INTO NP, we have

L-6 /enter/ in env V, Motional Postional (INTO (NP))

Infiltrate seems to incorporate the preposition into but not the adverb. Hence we can say

44) The Communists infiltrated the capitol.

but cannot say

45) *The Communists infiltrated.

On this basis we would have for this verb:

L-7) /infiltrate/ in env V, Motional Positional (INTO)

On the other hand insert and intrude do not incorporate the preposition, but only a whole phrase or the adverb in. This is necessary to explain the sense in

46) John inserted the coin through the slot.

meaning

47) John put the coin in through the slot.

Hence we would have for insert the lexical entry:

L-8) /insert/ in env V, Motional Positional (INTO NP)

Emerge is similar to the above, except that it incorporates OUT OF NP, which becomes the adverb out. Thus we can say

48) John emerged into the kitchen (having hidden in the closet all the while).

Hence we should have

L-9) /emerge/ in env — V, Motional Positional (OUT OF NP)

Arise seems to mean 'come up out of NP'. Compare the pairs:

49) Pretty little flowers came up in the garden.

50) Pretty little flowers arose in the garden.

51) John arose.

52) John came up out of where he was.

As distinct from rise, arise implies a significant source of the action. In some sense arise is to sink as rise is to fall. Compare:

53) A tree arose on that spot.

54) A tree rose on that spot.

The first of these is natural, implying that the tree sprang up out of the ground. The second seems to imply that the tree went higher. But the sentence is odd because the tree is not likely to be observed moving upward. Similarly compare the naturalness in

55) The ship sank suddenly.

56) The ship fell suddenly.

Leave means 'go away from' in

57) John left the house.

And in

58) John left.

we have incorporation of a whole FROM NP. Note that we cannot say

59) *John left away from the house.

Because the away and the from are obligatorily incorporated. This syntactic fact and the semantic nature of the verb can be explained by saying we have the lexical entry for leave as follows:

L-10) /leave/ in env — V, Motional Positional AWAY FROM (NP)

Escape always implies motion from some place. This is so even when there is no from-phrase present:

60) John escaped into the garden.

61) John escaped from the corner.

But we must have some object with an inside as the object of from here:

62) John escaped from the room.

63) John escaped from Bill.

In the second of these the implication is that Bill was holding John. Hold, we may note, has a subject derived from an in-phrase, 'in Bill's grasp', so to speak. Consequently out of makes sense here.

This gives for the lexical entry of escape:

L-11) /escape/ in env V, Motional Positional (OUT OF NP)

The idiosyncratic character of the verb, in that it implies that the subject was confined against its will, if Human, makes escape different from emerge which also incorporates OUT OF NP optionally. Thus for emerge we cannot say

64) *The bird emerged from that spot.

Unless we imagine something magical. This from is really out of, and hence its object cannot be a spot.

Stray may be paraphrased by wander away. Whatever the appropriate characterization of a verb such as wander, we would have the obligatory incorporation of away, obligatory in the environment:

L-12) /stray/ in env V, Motional Positional AWAY

It has recently been postulated (Postal, Lakoff, unpublished) that transitive verbs are formed by the deletion of of. This of appears in nominalizations of transitive verbs separating the nominalized verb and its object.

65) The building of such high towers is prohibited.

But with intransitive verbs we cannot have the prepositional phrase adjunct in place of the of:

66) *The looking at that picture is prohibited.

67) *The piercing through the screen was an unfortunate event.

These verbs are intransitive, having a prepositional adjunct. Note that pierce is intransitive when the preposition through appears. However, since we can say

68) The piercing of the screen was an unfortunate event.

with incorporation pierce acts as a transitive verb.

We would claim that the of that appears in nominalizations does not underlie the transitive verb since as for pierce we do not have of underlying, but have through. The of may appear for this particular nominalization for verbs which have a transitive form, even though on an underlying level we have an intransitive construction with through. Saying that an of underlies pierce in one form and through in the other would complicate things considerably. We will have to contend that there is no of underlying the transitive verb as a general case, although of may underlie some transitive verb in the same way that through underlies pierce, if this of has significance in the prelexical structure. For example, the of in deprive of is of this type. We cannot say however,

69) *The depriving of food and water is a sin.

This is not possible because the of of deprive is not ever incorporated and hence deprive is never a transitive verb.

2.4 Incorporation of Nouns and Adjectives

There are a few cases of incorporation of nouns and adjectives. However, this phenomenon is much less frequent than incorporation of the simple adverbs and prepositions shown above. The relative infrequency of incorporation of nouns and adjectives is probably due to their being elements less regularly defined in the prelexical structure.

For incorporation of nouns, consider the word eat. We can say

1) The baby is eating cereal.

2) The baby is eating a marble.

But if we say

3) The baby is eating.

we automatically imply that the baby is eating some sort of food, not possibly a marble. We can show that we have just about exactly the features of food underlying a noun that is incorporated in eat. This can be seen by the impossibility of saying

4) *I know that John was eating at five o'clock because I saw him eating dirt at that moment.

which means that a sentence with the object dirt cannot imply the one with the incorporated object. Similarly, the converse is true: a sentence with an incorporated object cannot imply a sentence with dirt:

5) *I know that John was eating dirt at five o'clock because I saw him eating at that moment.

However, the sentence with an incorporated object can imply one with food and vice versa:

6) I knew that John was eating at five o'clock because I saw him eating food at that moment.

7) I knew that John was eating food at five o'clock because I saw him eating at that moment.

We will say that eat optionally incorporates a prelexical item representative of food, i.e., the appropriate complex of semantic features, which we shall represent as FOOD. This is optional incorporation of an element which is optional among various possibilities in the environment. This is the same type of incorporation as we had for up in climb.

P-1)

$$/\text{eat}/ \text{ in env } \underline{\quad V \quad} \begin{Bmatrix} NP \\ FOOD \end{Bmatrix}$$

We will not discuss the finer structure of this verb. The causative of eat is feed, which also has this property of incorporation of FOOD.

8) John was feeding the child earth.

9) John was feeding the child.

For other examples, we have verbs which when used in the generic sense clearly imply some particular object if no object is apparent.

10) John drives.

means 'drives an automotive vehicle', although one can say

11) John drives teams of horses.

Similarly

12) John drinks.

means 'drinks alcoholic beverages', although one can say

13) John drinks three glasses of milk every day.

However, in the more referential sense of these words the implication of a particular type of object is not present.

14) John is driving (the team of horses).

15) John is drinking (water).

An adjective may be seen to be incorporated in the verb stink meaning 'smell bad'. This incorporation is obligatory.

16) *The barn stinks bad.

What ever the exact nature of this verb, we represent it by V, and the adjective by BAD, giving the lexical entry.

P-2)

$$/\text{stink}/ \text{ in env } \underline{\quad V \quad BAD}$$

Similar to this is the incorporation of bad in smell. Thus we can say

17) The kitchen smells fine.

18) The kitchen smells bad.

But if we say

19) The kitchen smells.

we mean only 'smells bad'. Assuming that the presence of some adjective is obligatory for other reasons, we can state the lexical entry for smell as follows:

P-3) /smell/ in env $\underline{\quad V \quad}$ (BAD)

The incorporation of nouns poses two problems, which because of the rare occurrence of this phenomenon, will not be considered in detail. The determiner must be incorporated with the noun, so that we actually have the incorporation of a noun phrase. We shall not assume any particular specifications for the determiner, but recognize that some form of the determiner must be specified.

The incorporation of a noun means that there must be specified in the prelexical structure the idiosyncratic features for this noun. For example, FOOD stands for such a complex of features. While it might be reasonable to assume that many prepositions and certain features of the verb are of such regularity throughout the language that we might consider their specifications to be accounted for by elements in the prelexical structure, nouns are generally so idiosyncratic that to assume their features are a characteristic of the prelexical system would not be of any value. In order to obtain the features for these nouns in the prelexical string prior to incorporation or the mapping of phonological forms onto the prelexical string, we might assume that such features can be produced by a pass through the dictionary, choosing whatever features occur there. However, we only refer to this as a possibility and will not support such a preliminary pass through the dictionary further here. The same problem exists for incorporation of adjectives.

3. SOME SIMPLE SENTENCE PATTERNS AND THEIR INTER-RELATIONS

3.1 The Theme as the Subject of Motional Verbs

The most common verbs of motion or, as we shall say, Motional Verbs, have for their subject whatever thing is conceived as moving. This is so in such simple verbs as go, come, roll, float, fly, swim, and many others.

1) The letter went from New York to Philadelphia.

2) The ball rolled down the hill.

3) The log floated out of the tunnel into the main tributary of the river.

In the above verbs there is no preposition incorporated into them from prepositional phrases in the predicate. This of course is possible as seen in Chapter 2, while maintaining the subject of the sentence as the moving entity. Such verbs as enter, cross, ascend, pass, pierce, and others incorporate prepositions of motion, namely, into, across, up, by, through, respectively. The formaliza-

tion and the variety of this phenomenon has been treated in Chapter 2.

Instead of the goals of motion being some concrete object or place, there exist verbs which express more abstract transitions. That is, instead of the transition of position, we may have a transition of activity as in

4) The circle suddenly switched from turning clockwise to turning counter-clockwise.

5) The climate changed from being rainy to manifesting the dryness of the desert.

Besides this we may express a transition of the class to which the subject of the sentence belongs, which we shall call the Identificational parameter:

6) The coach turned into a pumpkin.

7) Bill converted from a Republican to a Democrat.

8) The little house transformed into a palace overnight.

Essentially, we see that the to-from pattern is utilized in abstract senses, expressing various types of transitions. If we permit ourselves to look at causative forms, which will be treated in Chapter 8, we can observe other types of transition as well. For example, we may have Possessional transition in

9) John obtained a book from Mary.

10) John gave a book to Bill.

Similarly, we have a kind of transition of class membership in

11) John translated the letter from Russian into English.

Finally, the entity being transferred may also be abstract, as the expression of fact in

12) John reported to Mary from Bill that he wished to see her.

We will consider ourselves justified in using the term 'abstract motion' or 'abstract transition' because of the similarity in the senses of what is expressed and because of the identity of the prepositions used in all these senses. There is no particular priority intended for the sense of concrete motion, however. We will not be concerned with what sense is more basic, if any, although this is of some interest, probably more psychological than linguistic.

We may conveniently call the entity which is conceived as moving as the theme.

We wish to claim here, in addition, however, that the theme is of significance in the prelexical structure. Semantically it represents that entity that is engaging in the activity or about which the situation is concerned. We do not wish to claim here any immediate association between the theme and the subject of the sentence or between the theme here used and the grammatical element that appears in languages which exhibit thematicization.[8] The theme here described can be discerned solely on semantic grounds.

The theme will be generated in the prelexical structure, however, in such a

way that its significance syntactically will become manifest. There is some association between the theme and the subject of deep structure in that the theme is more frequently in this syntactic situation than any other, except as the object of a causative; and that no other element of the deep structure serves as subject as frequently. That this is true will become clear in the text. The formalization of it will be delayed for later sections (See 6.1).

The theme also has the significance syntactically in that it is an obligatory element of the sentence. It is the pivot of the situation both semantically and syntactically.

3.2 The Theme As Other Than the Subject In Motional Verbs

For Motional verbs we have conveniently called the entity which is in motion the theme of the sentence. As seen the theme may be in motion in a concrete or in an abstract sense, manifesting a change of position, possession, class membership, activity, etc. However, it is not always the case that the subject of the sentence is the theme. For example, in

1) John received a book from New York yesterday.

clearly the moving thing is the book. The subject, in addition to other things, represents the goal of the motion. On the other hand we seem to have change of position also expressed with send:

2) John sent a book to Mary.

Here the subject, among other things, represents the source of the motion. In fact, send and receive form a pair such that we have nearly equivalent meanings expressed by both of them when their subjects and complements are interchanged:

3) John sent a book to Mary.

4) Mary received a book from John.

Similar pairs with the same reciprocal relation are give and obtain, sell and buy, loan and borrow, let and let, all of which, according to slightly different senses, express a transition of possession. The subject of the first member of each pair seems to express the source of the motion, among other things; whereas the subject of the second member of each pair expresses the goal of this abstract motion. We have, therefore, such near paraphrases as

5) John gave a book to Mary.

6) Mary obtained a book from John.

7) John sold a book to Mary.

8) Mary bought a book from John.

It is our intention to explain this reciprocal relationship by claiming that the subject of these sentences consists, primarily, of the same construction which appears as a prepositional phrase in those sentences in which the theme is the subject in 3.1. In other words sentence 3) will have approximately the same prelexical structure as

9) The book went from John to Mary.

This sentence is also generated from the same prelexical form as 4), hence explaining the reciprocal relation. All three sentences, 3), 4), and 9), will have certain prelexical elements in common, namely the theme, and that which represents 'to Mary' and 'from John'.

The significant distinction that does not enable us to say that these sentences are complete paraphrases is the presence or absence of the concept of agent attributed to the subject of the sentence. This will be treated in Chapter 8.

Besides the semantic necessity to identify such prepositional phrases in the subject position, syntactically we observe that we obtain a great simplification in the grammar if we maintain this identification. The possibility of a to-Bill in sentences 4), 6), and 8) does not exist, with or without from John.

10) *Mary received a book to Bill.

11) *Mary obtained a book from John to Bill.

12) *Mary bought a book to Bill.

Similarly sentences 5) and 7) cannot have from Bill.

Of course it is possible to treat these restrictions by stating them as environmental restrictions in the lexicon. However, such a statement comes to appear wholly ad hoc in the light of the systemanticity observed here. As regards the prelexical structure of these sentences we simply allow the to-from pattern to appear. If one of the prepositional phrases is included in the subject position, quite naturally it will not appear in any other position.

In other words, we need only state that the subject of the sentence is generated from some particular prelexical prepositional phrase. From this the absence of such a prepositional phrase in post verbal position follows. Formally, the prelexical form for a sentence with obtain is approximately

2-1) /obtain/ in env $\underline{\text{TO}\ \begin{matrix}\text{V, Motional}\\ \text{Possessional}\end{matrix}}\ \left[\begin{matrix}+\ \text{Agentive}\\ \text{Subject}\end{matrix}\right]$

Here we use our usual notation, where the horizontal underline indicates all that is obligatorily incorporated in the verb. Words written entirely in capitals represent whatever symbols stand for the lexical item implied, and symbols enclosed in brackets represent the feature complexes characterizing the lexical item. Our placing the preposition before the verb will be our formal means of indicating such a prelexical prepositional phrase when in subject position. Thus, with the same idiosyncratic features expressed in the verbal matrix, we have for give:

2-2) /give/ in env $\underline{\text{FROM}\ \begin{matrix}\text{V, Motional}\\ \text{Possessional}\end{matrix}}\ \left[\begin{matrix}\pm\ \text{Agentive}\\ \text{Subject}\end{matrix}\right]$

The reciprocal property is explained both by the fact that there is an identity between the prelexical prepositional phrases used and that the idiosyncratic characterizations of the verb is the same in each. Thus buy and sell are similarly related, both having the features Motion and Possession in the characterization of the verb, but different in having some other characterization in addition. Similarly, the other pairs will be so characterized. Send and receive

will have the feature Positional rather than Possessional, and other types of transition may be similarly denoted.

The important thing to note, however, is that it is possible as well as efficacious to consider the constructions with the words above as being derived from the same underlying form. We need specify in this form only free association of a theme and certain prepositional phrases describing it. The ultimate syntactic form, e.g. the position of the theme in the sentence, whether as subject or object, is the principle variable.

3.3 The Possibility of a Transformational Relationship Between Buy and Sell, etc.

In our explanation for the relationship within such pairs as buy-sell, loan-borrow, send-receive, give-obtain, etc., we have essentially made it a lexical problem in which the relationships depend upon the particular prelexical structures to which these words correspond. However, another possibility which must be considered is that the sentences with these words are transformationally related. That is, there is some rule which will map a string such as

1) John bought a book from Bill.

into

2) Bill sold a book to John.

Naturally it will be necessary to have some sort of rule which will give the proper linear form to the prelexical structure, specifying some element of that structure as the subject. Such a rule by the very nature of the system proposed here will have to occur before lexical items with their phonological representations enter into the string. We will treat the formalities of this in Section 6.2. However, what we shall now question is the efficacy of having a transformation which relates these strings at the later stage when full lexical specifications have been made.

There are several objections to such transformations. First of all these transformations would have to be specially indicated for each word in the lexicon. That is, there would be required some marker, for example, affixed to the lexical entry for buy which would permit such a transformation to apply to map the sentence with it as main verb into a sentence with sell. However, since intuitively it seems that this reciprocal relationship is bound up in the meaning of the word itself, it would seem favorable to express in the lexicon the relevant characteristics of the meaning of the word in a symbolic notation which would at the same time indicate its use, and hence imply the apparent transformational relationship. This is precisely what the notation proposed here effects, making any special notation to signal a transformation seem unnecessary and ad hoc.

Using transformations that apply after phonological matrices have been developed on the string would demand the rewriting of the complete phonological matrix for buy as sell, for example. This seems like a very powerful rewriting system. In addition, it is not at all clear that syntactic transformations ever have to apply to phonological matrices at all. And if we restrict ourselves to circumstances in which the same word is used for both sides of relationship, such as let-let, rent-rent, we are omitting description of exactly the same generalities that pertain when the words used do not happen to be the same, which is the more common circumstance.

Even if we applied such a transformation before the phonological matrices were added to the string, but after the point at which full semantic and syntactic identification has been made, characterizing this reicprocity as a transformational relation would have the disadvantage of necessitation of a particular direction to the rule. That is, one of these elements, say either buy or sell, must be basic to the other. However there would seem to be no reason to favor one construction as coming from the other. That is, there seems to be no reason to assume buy is derived from sell rather than sell being derived from buy.

In addition there is the difficulty that in fact these pairs, while exhibiting a definite relationship between them, do not mean precisely the same thing, nor do they behave exactly alike syntactically. For example in

3) John bought a book from Bill.

John is the Agent, the entity which willed the action, whereas in

4) Bill sold a book to John.

we have Bill being the willing agent. This phenomenon will be discussed in Chapter 8. But if transformations are to preserve meaning, then these cannot be transformationally related, unless marked in an ad hoc manner. The fact that the subject in both cases is Agent has a definite effect on other elements in the sentence. For example in

5) John bought a book from Bill with American money.

we have an instrument phrase which only occurs with Agent. However, this particular instrument phrase does not occur if the subject is from a prelexical prepositional phrase in to. We cannot say:

6) *Bill sold a book to John with money.

In fact this particular phrase has the same distribution with all the verbs that express transition of possession. Obtain and borrow take the phrase, but give and lend do not. It is interesting that this phrase can be used to disambiguate such verbs as let and rent.

7) John rented the house with American money.

must mean that it came into John's possession.

Consequently if such transformations were to apply to complete syntactic and semantic markers, it would be required to do a considerable amount of semantic and syntactic adjustment by these transformations themselves. These observations point to some sort of reordering on a level deeper than that at which complete syntactic and semantic markers are supplied to the string. This is precisely what our prelexical structure is supposed to represent--an independently generated system of symbols to which the lexical items with their complete semantic, syntactic, and phonological markers are applied. The 'reordering' is really the initial ordering of the symbols in accordance with the syntax of English, prior to the application of lexical items.

One factor, however, which would be captured by a transformation is that such reciprocal pairs do exist at all. Why should the idiosyncratic nature of the transition of possession in sell be duplicated in buy? Similarly in the other pairs. There must be some formal property of the grammar which favors

such a situation.

It seems that we can capture this factor by attributing it to the possibility for simplification in the lexicon as a whole if such pairs exist. Sell might be listed in the lexicon as follows, where X specifies the idiosyncratic nature of the transition of possession:

L-1 /sell/ in env FROM V, Motional Possessional, X (TO)

Buy would then be, with the same X:

L-2 /buy/ in env TO V, Motional Possessional, X

Since the X's in both cases are identical, making the entire set of verbal markers of one correspond to that of the other, we can have the simplification:

L-3 { /sell/ in env FROM [ ] (TO) ; /buy/ in env TO [ ] } in env V, Motional Possessional, X

Assuming these abbreviations to be representative of real elements of a grammar we can say that such a grammar would favor the existence of such pairs. But the grammar would not demand them as characterizing them by a transformational relationship would do. Note that even greater simplicity can occur if the opposite members of the pair are the same word, as with let, rent, loan, lease, and in some dialects learn. The tendency for this type of simplification must be moderated by the necessity to communicate unambiguously.

3.4 The Theme in NonMotional Verbs

For nonMotional verbs the identification of the theme is not so obvious. In case we have a verb with which the preposition is overtly expressed, not incorporated, we have a relatively clear case. Just as for the majority of the Motional verbs, we have the subject the theme with various prepositional phrases describing it. The prepositional phrases here are of course locatives. In the following, then, we have the subject as theme.

1) The book is lying on the floor.

2) A man is in the room.

3) The chest is standing in the corner.

4) John is staying under the bed.

5) The bed will remain against the wall.

For the above class of verbs, then, in which there is no incorporation, the theme is discernable as the subject. When we have incorporation, if the verb is not a verb of motion, there is certain difficulty in deciding which noun the theme is, the subject or the object of the transitive verb. It is not possible to say that the theme in these circumstances is the entity in motion. And since,

as we have seen for verbs of motion, incorporation may occur after or before the verb, the theme may be either the subject or the object, respectively.

For example, consider the pair:

6) The circle contains a dot.

7) The circle surrounds a dot.

Logically, these two sentences are alike, expressing the same positional relationship between the circle and the dot. It is proposed, however, that one of the differences between these two sentences is similar to the difference between the two sentences, respectively:

8) The dot is inside of the circle.

9) The circle is around the dot.

Inside of and around are opposites in this sense. A sentence with one of these prepositions is logically equivalent to a sentence with the other preposition, but with the theme and the object of the preposition reversed. There are other pairs of prepositions that exhibit this behavior:

10) The light fixture is above the painting.

11) The painting is below the light fixture.

12) The bench is in front of the tree.

13) The tree is in back of the bench.

14) Bill is ahead of John.

15) John is behind Bill.

If A is a preposition and A' its counterpart as above, and NP_1 and NP_2 are two noun phrases, then we would have the following equation expressing this relationship (Negatives form a subset of counterparts):

E-1) NP_1 A NP_2 = NP_2 A' NP_1

Here the first NP is the theme, the second in each line the object of the preposition A or A'.

We propose therefore that one of the differences between sentence 6) and 7) is that in the first we have an object of the verb derived from the theme and a subject derived from a prelexical prepositional phrase, 'inside of the circle', whereas in the latter we have the subject a theme and the object derived from a prepositional phrase 'around the dot' from which around has been incorporated.

Semantically, there remains a difference between such pairs of sentences as exhibited above. The position of the entity in the prepositional phrase is considered to be the constraining factor by which the position of the theme is determined. In sentence 6) and in sentence 8) the position of the dot is conditioned by that of the circle; in sentences 7) and 9) the position of the circle

is conditioned by that of the dot. However, their relative positions are referred to as the same in each.

To see this distinction more clearly, note that a possible question-answer pair is

16) Where is the dot? --It is inside of the circle.

but not:

17) *Where is the dot? --The circle is around it.

18) *Where is the dot? --The circle surrounds it.

Similarly we have:

19) Where is the circle? --It is around the dot.

20) Where is the circle? --It surrounds the dot.

but not:

21) *Where is the circle? --The dot is inside it.

22) *Where is the circle? --It contains the dot.

Again we may have

23) Where are want ads? --The newspaper contains them.

24) Where are want ads? --They are in the newspaper.

but neither will serve to answer the question 'Where is the newspaper?'.

In other words, the dot must remain the theme both in the question and the answer, where being a prepositional phrase in the prelexical structure meaning 'at what place'. This corroborates our sense of the word surround, having the subject as theme. Note the morphological form also supports this. However, note that contain, phrase on the prelexical level, does have the dot as theme, and consequently such a sentence is possible. It is true that it is preferable to have the subject as the theme always, but for contain, with the theme the dot, in object position, we can have a satisfactory question-answer pair:

25) Where is the dot? --The circle contains it.

There is a decided difference in acceptability depending on the identity of the underlying theme. When the answer does not have the appropriate entity as the theme, there is the feeling that the answer is really an indirect hint, from which we can figure out the answer, but the answer was not told us. However, if the same entity is the theme in both sentences we have an acceptable pair.

Note that the acceptability is due to a phenomenon deeper than surface or even deep grammatical subject. The passive form of contain is acceptable, in which the theme has become subject:

26) Where is the dot? --It is contained in the circle.

The in that appears is actually a reduplicated prepositional phrase set up as an image of the subject of deep structure. We will discuss this in section 7.3. However, the acceptability of the above sentences is not at all due to the fact that the surface subject is the same in both question and answer. For example, the passive of surround, with the subject corresponding to the subject of the question, is not acceptable any more than it is in the active form with the corresponding element in object position:

27) *Where is the dot? --It is surrounded by the circle.

Thus the sentence that answers the questions 'Where is NP' must have NP as the theme, to a large extent independent of whether this NP is expressed in the subject or after the verb.

Consequently we may have the following lexical entries for contain and surround, the feature Nondescript (See 3.5) being used to specify the type of underlying verbal formative of the prelexical structure of the nature of be.

L-1) /contain/ in env — V, Nondescript; IN Positional

L-2) /surround/ in env — V, Nondescript; Positional AROUND

Further examples of locative incorporations also occur. Include and encompass are of the same nature as contain and surround respectively, except of a more abstract meaning. The words follow and precede in the locative sense pose a problem similar to that above for the determination of the theme. In the sentences

28) John follows Mary in line.

29) Mary precedes John in line.

we have the same logical relationship between John and Mary. It could be that this is due to the theme being the subject of the first and the object of the latter, or vice versa. However, it appears that in each the theme is subject, and the object is derived from a prelexical prepositional phrase from which the preposition has been incorporated. Thus we can have the following question-answer pairs:

30) Where is the letter C? C follows B.

31) *Where is the letter C? B precedes it.

32) Where is the letter B? B precedes C.

33) *Where is the letter B? C follows it.

Again, the criterion established here is true even if the surface subjects of question and answer correspond, such as in the passive. Hence we cannot have the above in the passive form either:

34) *Where is the letter C? It is preceded by B.

35) *Where is the letter B? It is followed by C.

However, in this case, even if it is the theme on the prelexical level, the entity asked about cannot be the surface object of the passive either.

36) *Where is the letter C? B is followed by it.

37) *Where is the letter B? C is preceded by it.

That the subject of follow is the theme and the object derived from a prepositional phrase is corroborated by the appearance of the preposition optionally, however.

38) B follows after A.

It is interesting to note that the incorporation here is of a prelexical preposition which has as its essential the meaning of 'after'. Note that other prepositions may have this meaning, namely in back of, behind, which may be used instead of after overtly. The prepositions must therefore correspond to the same prelexical preposition which may be manifested as any of the above.

Thus precede and follow will have the following tentative lexical entries. (See 4.8.)

Follow has optional incorporation of AFTER; precede has obligatory incorporation of BEFORE.

L-3) /follow/ in env — V, Momentary, Positional (AFTER)

L-4) /precede/ in env — V, Momentary, Positional BEFORE

Certain senses of touch show a clear sense of incorporation of on or next to:

39) The property touches (on) the boundary of the city.

Similarly the verbs border, straddle, flank, edge, skirt may be considered to incorporate locative prepositions such as by, near to, beside, etc.

In the vertical dimension overhang, top, cap, surmount, etc., incorporate above, over, or on top of. Underlie may incorporate under.

Thus it appears that words for linear dimensions--horizontal, vertical--have subjects which are derived from the prelexical theme, with instances of incorporation, optional and obligatory, of the preposition indicating the specific relationship. There are, however, some instances in which the theme is after the verb for nonlinear relationships, such as that expressed by inside of and around, for which we have subjects derived from prelexical prepositional phrases. The essential intransitive construction with prepositional phrases may be considered to underlie these forms, however, in the prelexical structure.

3.5 Motional, Durational, and Nondescript Verbs

We shall present in this section the three characterizations of verbs which we shall use, based upon their temporal characteristics. We have already seen many examples of verbs of motion, which we have called Motional verbs. These

always express a change or a transition of some sort, through time.

There are two types of verbs which take locative prepositional phrases only. Verbs which we shall call Durational are, for example, in the sentences:

1) John kept the book.

2) John kept Bill from doing the dishes.

3) John remained in the room.

4) John held on to the bannister.

In all of these, the verb necessarily implies that the action depicted lasted longer than an instant. It implies necessarily that the action lasted at least from one instant to another, for some finite length of time. Verbs that have this characteristic we shall call Durational.

However, there are some verbs which can describe an instantaneous situation: have, be, stand, lie, own, possess, weigh, cost.

5) John had the book.

6) John was doing something other than the dishes.

7) John was in the room.

8) The carpet touched the far wall.

Compare keep and have or own, remain and be, etc.

Actually, locative verbs such as this can be considered as having no special preference for their referring to an extended period of time, or for their referring to an instant. We shall therefore call them Nondescript, for 'non-temporally descript'. It seems that the Nondescript verbs can take the temporal descriptions that the Durational verbs can, thereby taking on the meaning of the Durational:

9) John was in the room for many hours.

10) John has had the book too long.

But there is something strange about using prepositional phrases that denote that an instant of time is being described, for the Durational verbs:

11) John was in the room at 2:15.

12) *John remained in the room at 2:15.

13) Not everybody noticed, but it was apparent to me that at 2:15 only John owned any of that stock.

14) *Not everybody noticed, but it was apparent to me that at 2:15 only John kept any of that stock.

The sentence with keepcan be fixed up by changing at to by which implies a flow of time.

A clear difference in Durational and the Nondescript can be seen when the negative is used:

15) The book did not remain that expensive.

16) The book was not that expensive.

The Nondescript still represents, possibly, an instantaneous situation. However, clearly the negation of the Durational verb, negates this very reference to the duration of the situation. It says, in effect, that the situation has not endured, and has changed. This point will be more fully discussed in section 4.5. Note here, however, that the action of not on the Nondescript verbs is such that the property of being temporally nondescript is not itself negated. This may indicate that this feature is really the absence of something which the Motional and Durational verbs have.

4. PREPOSITIONS

4.1 The Negativity of From

We have noted in section 3.4 that there is a relationship among certain pairs of prepositions, such as between after and before, above - below, in back of - in front of, etc. We will consider this relationship to be explainable by some notion of opposition utilized in the interpretive semantic component. However there is a relationship between some prepositions which we shall attribute to their analysis into formatives of the prelexical level.

Let us consider the possibility of treating from as a negative of to, having the lexical structure TO NOT. We might also treat out of as the negative of into, being INTO NOT, without further analysing into here. Off of will accordingly have the structure ONTO NOT. That this is a feasible and reasonable thing to do can be seen both semantically and syntactically.

Semantically, consider the following sentence and quasi-sentence:

1) John ran from the old house.

2) John ran to not the old house.

If we consider the second of these to mean that the goal is specifically to the complement of the position of the object of the preposition, then the sentences mean the same. This is what we shall intend by the phrase 'negative preposition'.

It should also be noted that while from does mean 'to the complement of', off of does not necessarily mean exactly 'onto the complement of'. Such a paraphrase implies the kind of position achieved after the departure. Off of, as well as out of indicate the kind of position previous to the departure. That is, the on and the in are negated as well. Off of the table actually means 'to the complement of on the table' or from on. We shall be able to understand this situation better later. Let it now suffice to observe that it is wholly reasonable to assume the negativity of from, out of, and off of.

The negativity of from shows up syntactically in the appearance of any in clauses which serve as noun phrases as objects of the preposition:

3) The climate kept us from having any picnics.

4) John was restricted from watching any television that night.

5) John drove Bill from talking to any of the guests.

but not:

6) *The instructor kept us reading any books.

7) *John was restricted to washing any dishes.

8) *John forced Bill into talking to any of the guests.

Although we can have, without any:

9) The instructor kept us reading books.

10) John was restricted to washing the dishes only.

11) John forced Bill into talking to the guests.

We would therefore say that from is also a negative of at, and similarly for in and on we have negatives out of and off of. Thus away from means approximately 'at a place in the complement of'. For out of and off of we have the same difficulty as above.

Note that the negation of the whole sentence does not at all give the same meaning as the negative preposition. The sentence

12) John didn't run to the old house.

does not mean that John ran to the complementary position of the house.

Note, however, that we do have an equivalence for be between the negative modifying the whole sentence and modifying elements in the prepositional phrase.

13) The dog is out of the kitchen.

14) The dog is not in the kitchen.

15) It is not true that the dog is in the kitchen.

And for verbs such as stand this is true, omitting consideration of negation of the kind of posing (e.g. 'upright' for stand).

16) The statue was standing outside the hall.

17) The statue wasn't standing inside the hall.

To a certain extent we will go into the analysis of the structure of prepositions, relative to the prelexical level. At this point we note that the prelexical negative particle NOT may be compounded with prepositions to form 'negative' prepositions.

4.2 Obligatory Presence of Away Before From in NonMotional Expressions

It should be noted here that while FROM may be TO NOT or AT NOT, for the

non-motion forms it is not possible to say from NP alone:

0) *The statue was standing from the wall.

1) *The book was lying from the chair.

2) *The lamp post was from the house.

3) *The cat remained from the food.

We must have the from complemented by away:

4) The statue was standing away from the wall.

5) The book was lying away from the chair.

6) The lamp post was away from the house.

7) The cat remained away from the food.

This, however, does not seem to be the general case for verbs of motion, in which from is TO NOT, rather than AT NOT.

8) The man was running from the house.

9) The boat drifted from the place we had left it.

10) The ball dropped from a point above us.

In fact for some verbs of motion away cannot be used:

11) *The man left away.

12) *John escaped away from Bill.

Note that instead of away we can have 'at some distance', 'two feet', 'far', and have a grammatical sentence:

13) The statue was standing two feet from the wall.

But this appears to be a deletion of away, there being no difference in meaning between the above and

14) The statue was standing two feet away from the house.

Consequently we see that for non-motion verbs it is necessary to complement from with away.

The nature of away will be discussed in 5.3.

4.3 Prepositional Expression of Possession

When possession is being expressed it appears to be the case that the possessor is expressed as the object of the preposition to or from whereas the theme would then be the thing possessed. Or, equivalently, the thing possessed

is expressed as the object of the preposition in or out of while the theme is the possessor.

Thus for transitions of possession we use to before the possessor goal, not into, in many circumstances, for example:

1) John sold a book to Bill.

2) John gave some money to Bill.

There are some little used expressions of transition of possession in which the preposition is associated with the possessed object. Consider:

3) John came into money.

4) John came into possession of the cattle.

Here, note, we have the preposition appropriate to theme as possessor.

Similarly for the negative preposition, expressing transition away from possession, we have the from with its object the possessor:

5) John bought a book from Bill.

However, in certain idiomatic expressions we have out of the negative of into attached to the possessed article:

6) John ran out of books.

But the use of out of for transition of possession is not regular. We cannot say, for example

7) *John took Bill out of money.

In nonMotional situations we have the nonMotional counterparts of the above. For the object of the preposition to be the possessed article we have the nonMotional in:

8) John is in the money.

9) John is in the know.

These expressions are not too common.

The negative of in is out of and consequently we find out of used to indicate the nonMotional expression of Possession with the possessed entity its object:

10) John is out of cash.

11) Bill kept John out of money.

Similarly, with and its negative without patterns as does in:

12) You may choose a rug with either pattern.

13) I want a rug without a pattern such as that.

14) John remained with all his money.

15) John remained without any money.

It is interesting to note how the above with for possession parallels with for position, the negative of both of them being without. With can, moreover, be used in a positional sense as well (see 4.1).

16) John came with his wallet.

17) John came without his wallet.

18) John's wallet came with him.

19) John carried the wallet with him.

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There are also nonMotional, Possessional prepositions whose objects are the possessor. For example, we have to and from used in a nonMotional sense in:

20) John has the book to himself.

21) The book belongs to Bill.

22) John restricted the book to Bill.

23) John kept the book from Bill.

Thus we see that we may have to and its negative to indicate by whom a theme is possessed; or we can have in and its negative to indicate what the theme possesses. This relationship is similar to the one observed between the pairs around and inside, etc. in 3.4, in which an opposite preposition is used to express the same physical relationship but with the theme and object of the preposition reversed. The explanation for the phenomenon above may therefore be the same, to being in some sense opposite to into.

The use of of for possession may be explicable in this sense. Of indicates the possessor. About is often shortened to of as in think of - about, speak of - about, know of - about, a tale of Moses as a child - about Moses.

Also note the use of about along with to in

24) John has a pleasant nature about him.

25) John has a pleasant nature to him.

We do not mean that the above pairs are identical. It may be that the use of of and to differ from about in a distinction similar to that between possession and the looser contiguity, position (see 4.4).

It should be clear, however, that possession is essentially a prepositional relationship which has the same properties as the relationships for position noted earlier.

4.4 Extension of the Notion of Possession and Formalization

We have seen how the prepositions to and from can be used for nonMotional expressions of possession. However, consider the following uses of these

prepositions:

1) The paper adhered to the wall.

2) John clung to the window sill.

3) John restricted Bill to the room.

4) John kept the child to its room.

This implies that we may extend the concept of possession to include any close association between two entities, an association closer than position. Then it would appear that the to in the set of sentences above is also a non-Motional Possessional expression, except that the object of the preposition is not Human. Compare the "Possessional" sentences above to the use of with expressing nonMotional Position with Animate objects, and to the use of ordinary nonMotional prepositions with nonAnimate objects:

5) John has the book with him.

6) John kept the book with Bill.

7) The paper remained on the floor.

8) John kept the child in his room.

The nonMotional preposition of Position with Animate objects is with. We may consider this to be the obligatory counterpart of at with Animate objects, since we cannot say:

9) *John has a book at him.

We chose to say with him is the counterpart of AT, and not on him because with, like at, does not specify any special arrangement of relative positions, as does on, and other prepositions. Of course, the lexical item at is restricted in many ways. Our prelexical AT is intended to be of a completely general nature. To see that with is more general than on, note that a possible question answer pair is:

10) Does Mary have a wallet on her? No, but she does have one with her (for example, in the car that came with her).

But we cannot have it the other way around; the general is not negated by one of its instances being true:

11) *Does Mary have a wallet with her? No, but she does have one on her.

With appears, therefore, as the neutral preposition of position, like at, used for nonMotional Positional expressions before Animate nouns. Notice that its use with have above disambiguates this verb. Have may be either Positional or Possessional. We cannot however disambiguate have isolating the Possessional sense because it is not possible to say

12) *John has a book to him.

However, we can clearly disambiguate

13) The house has a roof.

into a Positional sense:

14) The house has a roof on it.

and a Possessional sense

15) The house has a roof to it.

Own and possess are only Possessional, and, in fact, they can only be used with Human subjects:

16) *The house owns a roof.

17) *The cat possesses a leash.

The fact that we have a subject derived from a prepositional phrase with these expressions is clear from the sense and from the redundancy repeated prepositional phrases such as 'to it' and 'with him', testifying to what we have in the subject. (See 7.3.) It is also clear that in English the preposition of possession is usually attached to the possessing object. Also, if we want consistency for have we would say that for the Possessional just as for the Positional the subject is derived from a prepositional phrase. Certainly for the Positional it is from a phrase because we have the pair:

18) Where is the book? John has it.

Of course such a question answer pair as

19) *Where is the book? John owns it.

is not possible, since own is only Possessional. Where means 'at what place' and is of a Positional nature. Possess and belong to are also only Possessional, unlike have, which may be Positional and Possessional.

For own and possess therefore we have the lexical entry:

L-1) V, Nondescript
/own/ in env Human AT Possessional

while for belong we have

L-2) V, Nondescript
/belong/ in env Possessional AT

the fact that to appears on the surface is due, we shall say, to the fact that AT is manifested as to for Possessional verbs. AT then merely represents a non-Motional preposition.

Have however is ambiguous as to its being Possessional or Positional. Consequently we may write:

L-3)

		V, Nondescript Possessional
/have/ in env	AT	Positional

The prelexical AT can be used to specify a preposition whether it is positional, becoming with before Animate nous, or Possessional, becoming to.

Keep, so often used in examples above will be treated more fully in section 8.6. We note here, however, that it too can be used in both a Possessional and a Positional sense. One of the differences between keep and have is the fact that keep is a Durational verb, rather than Nondescript. Thus we have the entry for keep, tentatively, as follows:

L-4)

		Durational Possessional
/keep/ in env	AT	Positional

The use of of or 's for the Possessional may be a direct translation into the surface structure from our Possessional to. Compare the sentences:

20) The book belongs to John.

21) The book is John's.

However, it seems that structurally, the latter is of a more complex origin. For example, we can say

22) The book is John's own.

but not

23) *The book belongs to John own.

In other words, the 's acts here in the same way that it would if used before a noun, and we have underlying it:

24) The book is John's book.

which may become by a type of pronominalization

25) *The book is John's one.

From which the one must be obligatorily deleted to give the desired result. This is the same in

26) The book is mine.

which comes from

27) *The book is my one.

When of and 's are both used, as in

28) I saw a book of John's.

we will claim that this is transformationally derived from:

29) I saw a book which John has.

The sentence

30) *I saw the book of mine.

is ungrammatical, with a definite determiner, and must become:

31) I saw my book.

Similarly, the sentence

32) The book is the book which John has.

becomes

33) The book is the book of John's.

which becomes

34) The book is John's book.

which ultimately becomes

36) The book is John's.

4.5 The Relationship between Motional and Durational Verbs

The Durational and the Motional verbs undergo a relation with not such that we have the following identities:

1) John remained out of the room.

2) John did not go into the room.

3) John did not remain on the rug.

4) John went off of the rug.

5) John remained at that spot.

6) John did not go from that spot.

7) John did not remain off of the rug.

8) John went onto the rug.

As seen in 4.1, we know that into is TO IN, in is AT IN; onto is TO ON, on is AT ON; to is TO; at is AT; and for the negatives for which we have seen that AT

NOT and TO NOT written as FROM, we have out of as FROM IN, off of as FROM ON, and from as FROM. The negatives all manifest the same form for the Motional and nonMotional prepositions. With these underlying structures in mind we can see that all the above identities, and more, reduce to the following and its logical equivalents:

E-1) REMAIN AT NOT = NOT GO TO

For example, starting with 'John remained out of the room' we have REMAIN AT NOT IN which becomes NOT GO TO IN which yields 'John did not go into the room'. Logical equivalents of the above equation demonstrate the other identities. For example NOT REMAIN AT = GO TO NOT will prove the second pair; and NOT REMAIN AT NOT = GO TO will prove the fourth.

This relationship with not is the same that occurs between the universal and existential quantifier.

Notice, however, how be, a Nondescript verb, behaves differently with regard to not and prepositions of place; we have the following identification:

9) John was out of the room.

10) John was not in the room.

11) John was not on the rug.

12) John was off of the rug.

13) John was at that spot.

14) John was not away from that spot.

15) John was not off of the rug.

16) John was on the rug.

Here very clearly it doesn't make any difference where the not is with respect to the prepositions and the be. That is, we can entirely disregard the be and write the identity

E-2) AT NOT = NOT AT

If we permit the fact that we have TO instead of AT is conditioned by the fact that we have a Motional verb, then we can say we have nothing but AT, basically. Then E-1) becomes

E-3) REMAIN AT NOT = NOT GO AT

We can assume that E-2) applies so that we have, disregarding the preposition entirely

E-4) REMAIN NOT = NOT GO

What this means is that our decision in 4.1, to say that the not in our negative forms was after the first preposition, is unnecessary. We can specify more simply that it is uniformly before the positional preposition. It matters, however, if we have Durational, Motional, or Nondescript verb. In the first two, negation of the verb is distinct from negation of the preposition. However, for be we have a different situation.

The fact that remain and go form such a relationship as above gives the impression that these two features, Durational and Motional, form a kind of complete set: The fact that be doesn't enter into any kind of relationship of order with not suggests that be is lacking in whatever the Durational and Motional forms have. Without any quantification the order of negation doesn't count:

17) That man is not happy.

is equivalent for our purposes to

18) It is not true that that man is happy.

However with quantification it matters. The equivalences are as follows:

19) It is not true that some man is happy.

20) All men are not happy.

21) Some man is not happy.

22) It is not true that all men are happy.

Here some and all are related just as remain and go.

Except for the greater number of Motional verbs than Durational verbs, there doesn't seem any reason not to derive one from the other; for example, by saying that remain is NOT GO NOT.

Just as we have the triplet be, go, remain for the Positional, we have for the Possessional the verbs have, give or receive, and keep, respectively Nondescript, Motional, and Durational. That is, we could say the identity between the following two sentences is due to their merging on the prelexical level:

23) John remained in the room. (NOT GO NOT IN)

24) John didn't go out of the room.

Although this is logically possible we shall assume the rule E-4 as part of the interpretive component. There are other relations such as this in language, some-all, for example, and it would seem strange to want to call one more basic than the other.

These results may give evidence to the possibility that be is in some sense the absence of any verb, assuming that the features Durational and Motional are opposite values of a feature which is marked for a verb. The behavior of be with not, relative to the other forms, may be explained by assuming there is nothing present for its order to be significant with. The same is true for the Possessional words. Thus, consider the quasi-grammatical pair:

25) The tree doesn't have life.

26) The tree has death.

These sentences roughly mean the same thing, death being the complement of life. Hence it is feasible to talk about the position of a negative particle as not being significant to the position of the verb have. Have as we have decided is Nondescript. However, for a Durational verb, the order of the verb with not is significant:

27) The tree didn't retain its life.

28) The tree retained its death.

These, if understandable, are different from each other significantly, in the same manner as described above. The first sentence clearly implies a transition of possession, meaning:

29) The tree lost its life.

Hence, for all the Nondescript verbs we should want to say that there is some element which may have a value Durational of Motional, which is missing from them. We will be primarily concerned with the formalization of various Durational and Motional verbs, however, and will not be concerned with the underlying reality of the Nondescript verbs.

Just as we have the triplet be, go, remain for the Positional, we have, for the Possessional, the verbs have, give or receive, and keep; respectively, Nondescript, Motional, and Durational. Consider the following sets of strings, the first of each pair being an ungrammatical form, imitating the prelexical structure:

30) The book is to Bill.
31) Bill has the books.

32) The book remains to Bill.
33) Bill keeps the book.

34) The book goes to Bill.
35) Bill gets the book.

The identity

36) The book doesn't remain to Bill.
37) The book goes from Bill.

is reflected in

38) Bill doesn't keep the book.

39) Bill loses the book.

4.6 The Expression of Goal

With verbs of motion we have seen prepositions used for what we shall call expression of goal. The object of the preposition is the place reached. It is not only such prepositions as to, into, onto, which manifest overtly a to, that can be used for the expression of goal, however; we can also use such prepositions as below, above, in front of, in back of, behind, before, ahead of for this. In the following sentences the intention is to express the ultimate destination of the motion:

1) John ran below the deck.

2) The balloon ascended above the first floor.

3) The dog scooted in front of the house.

4) John side-stepped to the left of the onrushing bull.

All of the above imply to; for example, one might be paraphrased 'to a place (which is) below the deck'. The to in 'to the left of' is not the to which expresses goal here. We can have the same to before such words to express location:

5) John stood to the right of the house.

6) The territory is to the south of the river.

This to is a part of the preposition itself which, while conceivably further analysable, we shall not attempt to do this in this paper.

We might conceive of there being a to in these constructions which has been deleted should it occur before the rest of the preposition. Clearly into is TO IN and onto is TO ON. The to has been post-positioned for into and onto and therefore is not deleted.

Evidence that we may indeed have this can be seen in the use of from, the negative of to, in such expressions as:

7) John ran from below the deck.

8) The balloon descended from above the first floor.

9) The dog scooted from in front of the house.

10) John jumped in from behind the tree.

In out of and off of, the negatives of into and onto, we may conceive ourselves as having really FROM IN and FROM ON. In fact we can say both of

11) John jumped off of the table.

12) John jumped from on the table.

which simplifies the situation considerably. We can say that we always have the form with from to the left, but for in and on we have additional possibilities. The main point here is, however, that the presence of from in these cases is

reason to assume that we have a to underlying the cases in which no preposition occurs. Thus we have both semantic and syntactic justification for such a move.

Note now that this analysis of off of and out of clears up the difficulty noted in section 4.1, in which we needed the paraphrases for off of to be 'to the complement of on'. Since from is now the only negative preposition, we can construct out of and off of from from, which means 'to the complement of'. Hence FROM ON means 'to the complement of on'.

Naturally all the prepositions above can be used in a nonMotional sense, but for nonMotional verbs only the nonMotional prepositions can occur, thus the ungrammaticality of the following:

13) *The book remained onto the floor.

14) *The chair was to the table.

15) *The lamp stood into the corner.

If we characterize all nonMotional prepositions as compounded from an underlying at, then when they are used for the expression of goal, all we need say is that we have to instead of at. For example, if we say that in the sentence 1) above we have 'at a place BELOW' we could have for the expression of goal 'to a place BELOW'. This prelexical form BELOW will not of course map directly into below. Rather it might be something of a more analytic character such as 'DOWNWARD FROM'. Thus we would have for the sentence 11) above a structure underlying 'at a place downward from the table'. Similarly for all the prepositions above we could find a more basic representation governed by at. We will assume that this is possible, although we will not go into further analysis of prepositions in this paper.

It is apparent, however, that it is useful to say that the above prepositions are basically at. Note that the negative is exactly as the negative of at for non-motion verbs. Away is required, as seen in section 4.2:

16) John remained away from below the table.

17) John stood away from in front of the mirror.

18) *John remained from below the table.

It does not seem to be possible to use away from on for off of, or away from in for out of in not only non-motion verbs, but motion verbs as well. (See 5.3.)

We could easily specify that at and to are deleted after the verb, although from, in both the Motional sense and the nonMotional, is not deleted. The tendency for the deletion of to is not so strong if the prepositional phrase follows another. Compare

19) John ran from under the shed to in front of the house.

20) John ran from under the shed in front of the house.

It might be possible to say that in the prelexical structure we have only AT and AT NOT (or FROM) which when in construction with a Motional verb becomes TO and TO NOT (or FROM). This would be a similar rule to what we have for the Possessional (see 4.4). Hence we could combine it into one rule:

R-1) $\left[V, \begin{Bmatrix}\text{Motional}\\ \text{Possessional}\end{Bmatrix}\right]$ X AT

1 2 3 ===> 1 2 TO

Boolean Condition: if 1 < Z, then 3 < Z

Here the Boolean condition states that if the verb is dominated by some node Z, then the preposition is also dominated by that node. That is to say, the preposition is in construction with the verb. The brackets indicate 'either of the two'. X may be any intervening prepositional phrase. As will be seen its content is very limited.

The similarity between the locative of Durational verbs and the expression of goal for the Motional verbs warrants a rule connecting the two as above. It can be seen that every locative expression may become an expression of goal in the environment of a Motional verb. On the prelexical level we have only AT, and complexes based on AT. The above rule amounts to marking all AT's in construction with the appropriate verb to be put in the appropriate form when lexical entries are added. It is not favorable to have the nature of the verb conditioned by the prepositions present, since we can have more than one expression of goal with a Motional verb. The above rule will mark them all:

21) The bird flew into the brush to its nest.

4.7 The Expression of Location

The locative use of prepositions is possible with verbs of motion, however, along with the expression of goal. Thus a sentence such as:

1) The ball rolled in front of the house.

is ambiguous in that it may be an expression of goal or an expression of the location in which the ball rolled. Expectedly, we have only away from, and not from to express the locative with verbs of motion. The sentence

2) The ball rolled away from the house.

is ambiguous. But without away the sentence is only the expression of goal.

Certain verbs of motion will incorporate expressions of location. For example, this may be the case with hover, incorporating over NP optionally.

3) The bird was hovering nearby.

implies

4) The bird was hovering over a place nearby.

If the above rule is correct for the marking of prepositions for the Motional form when in construction with the Motional verb, then the appearance of locative prepositions with Motional verbs must not be generated in construction with the verb on the prelexical level. That this perhaps is so can be seen by the preferred order of locative expressions and expressions of goal. The locative expression occurs outside the verb-goal complex:

10) The bird flew into the brush in the yard.

Here we mean that the action took place in the yard. We do not mean that the brush is specified as being in the yard, a noun modified by a prepositional phrase; nor do we mean that the goal of the action was the yard, in which in has the meaning of into. In a sentence such as

12) They shoved it into the room by the window.

The second prepositional phrase is really an expression of goal from which to has been deleted as usual, the phrase meaning 'to a place by the window'. Below, we shall try to bring out the sense desired by supplying contexts. The second prepositional phrase is to be considered an expression of location, whereas the first is an expression of goal:

13) John jumped off of the train in New York.

14) The clown did its act as usual, jumping into the water before his audience.

15) The model electric trains went along their tracks about the room, and finally rammed into each other at the corner.

In these examples, except for the possibility that the second prepositional phrase is either an expression of goal or a prepositional phrase modifying the preceding noun, we shall say that the prepositional phrase is not in construction with the verb. Rather we shall generate expressions of location outside of the whole verb-goal complex.

The opposite order for the expressions of goal and location would be:

16) *The model electric trains finally rammed at the corner into each other.

17) *John jumped in New York off of the train.

18) *The bird flew in the yard into the brush.

These seem very awkward, and must be spoken with a pause between the prepositional phrases if possible at all. The constituent structure has been broken up by the intervening phrase. Note that we can say

19) In New York, John jumped off the train.

20) In the yard, the bird flew into the brush.

21) Finally, at the corner, the trains rammed into each other.

Here, the initial prepositional phrase is in construction with the whole sentence, apparently. The preposing, however, seems to add emphasis to the phrase, changing the meaning slightly.

We will assert therefore that the locative expressions for Motional verbs are generated outside of the verbal construction. For nonMotional verbs we have prepositional phrases which are clearly generated in construction with the verb, as well as outside of this construction:

22) John sat on the bench in the yard.

23) The rope lay across the floor in the room.

This sentence is the natural order. The order in the sentence

24) John sat in the yard on the bench.

has the same awkwardness and broken-up feeling as the intervening locative and expression of goal above. We may also say

25) In the yard, John sat on the bench.

indicating that this is in a wider constituent than the verb-locative construction. Note that we can say neither of:

26) *On the bench, John sat in the yard.

27) *Into the brush, the bird flew in the yard.

The prepositional phrase generated in construction with the verb cannot be preposed.

The statement regarding the incorporation or obligatory presence of a locative expression with a verb of motion would have to identify a constituent in an environment exterior to the constituents dominating the expressions of goal. Therefore, if the lexical entry did not make mention of the expressions of goal as being possibly present, it would stipulate that the expressions of location occur immediately after the verb. Because of the order present for the prelexical structure which we have seen, this would automatically eliminate the possibility for an expression of goal. This would be especially true in the case of obligatory incorporation. Consequently, note that for the verb of motion which incorporates a locative expression, we have no possibility for an expression of goal:

28) *The bird was hovering into the cage.

We will show how these forms are generated by re-write rules in the prelexical system in section 8.1.

4.8 The Expression of Accompaniment

Another possible sense of these prepositions in the locative form is what we shall call expression of accompaniment. In the sentence

1) John flew the kite ahead of him.

the sense may be that John was moving, maintaining the kite ahead of him. Similarly we may have this sense in

2) The ball rolled in front of John.

3) John dragged the ball behind him.

4) The ball bounced before the child.

5) John bounced the ball after him.

6) John flew the kite along with him.

Some of the above are triply ambiguous among the three senses which we have been describing. After and along with must be used in only the expression of accompaniment. In some dialects this may be true for before as well. But if before can be used to mean in front of in the nonMotional sense then it will be usable as an expression of goal. Since after and along with cannot be used for expression of location, they also cannot be used for the expression of goal.

Note that in some of the sentences above reflexivization isn't necessary. The third sentence is ambiguous six ways. The pronoun may refer to the subject or to some other person. The prepositional phrase may be used in any of the three senses given above.

Prepositions expressing accompaniment are incorporated in verbs as well. For example we have precede and lead which incorporate before. Precede differs from lead in that the subject of lead is also an Agent: the animate subject of lead intentionally goes before the other person. For these two words we have obligatory incorporation:

7) John preceded Bill.

8) *John led before Bill.

Note also that precede can be a nonMotional verb indicating the relative position of two entities, as in 'precede in line'. We will say that this is still expression of accompaniment, except both are stationary.

Pursue and chase are forms with Agent subjects also with the preposition after expressing accompaniment. For chase the preposition is optionally incorporated:

9) John chased (after) the thief.

10) *John pursued after the thief.

11) John pursued the thief.

Follow also incorporates AFTER, and AFTER NP as well, all optionally.

12) John followed (after) Bill.

13) John was following very quietly.

The other forms do not incorporate the whole prepositional phrase, or adverb.

14) *John is chasing very quietly.

Follow may also be used in a nonMotional sense, as in 'follow in line', as seen in section 3.4.

The expression of accompaniment is no less present in the verb accompany in which we have incorporation of with:

15) John walked with Mary.

16) John accompanied Mary.

It is interesting to note how in the Agentive forms lead and pursue, there is a very clear idea of the subject keeping the same relative position between himself and the other object, both of which are moving. These verbs can be used as normal verbs of motion, despite their incorporations of stative prepositions:

17) John pursued Bill from the center of town to the school house.

18) The piper led the children into the sea.

Again, we have here the problem of how to generate the expressions of accompaniment. They must be generated outside of construction with the verb, as the locative expressions above. Also, they must be generated in a different way from the locative expressions, because certain prepositions, along with and after, only occur in this sense. We would like to say that the prelexical formative for after is the same as that for in back of, except for its place of generation.

The expressions of accompaniment, unlike the expressions of location, cannot be preposed:

19) *Along with Bill, the ball rolled.

20) *After him, John bounced the ball.

This would seem to indicate that these expressions are generated necessarily in a more deeply nested constituent than the locative expressions. Note also that the natural order is the expression of accompaniment followed by the expression of goal.

21) John rolled the ball after him into the ocean.

22) *John rolled the ball into the ocean after him.

23) John pushed the cart along with him to the conveyor belt.

24) *John pushed the cart to the conveyor belt along with him.

It would seem that all the above facts could be handled by assuming that the expressions of accompaniment are generated in construction with the theme in the prelexical structure. This would also carry the semantic connotation of accompaniment.

For our lexical entities, follow incorporates after optionally along with the object of after, optionally. The after-phrase is obligatory in the environment if not incorporated. Also, we must consider the word either Motional or Nondescript. Therefore we have:

L-1)

$$\text{/follow/ in env } \underline{\text{Positional}} \quad V, \begin{Bmatrix}\text{Motional}\\ \text{Nondescript}\end{Bmatrix} \underline{\quad} (\underline{\text{AFTER}} \quad (\underline{\text{NP}}))$$

Pursue is obligatorily Agentive and obligatorily incorporates AFTER, necessarily without the NP. Hence we have:

L-2)

		V, Motional	
/pursue/ in env	Agent	Positional	AFTER

The significance of the subject being marked as above as Agent will be understood more fully in Chapter 8. It should be understood that the subject is still the theme also, however. Pursue is only Motional. Similarly we have lead:

L-3)

		V, Motional		
/lead/ in env	Agent	Positional	BEFORE	(NP)

Precede is like follow in that it may be both Motional or Nondescript. It incorporates BEFORE obligatorily:

L-4)

	V, {Motional / Nondescript}	
/precede/ in env	Positional	BEFORE

While lead may incorporate the nounphrase object of the preposition,

25) John is leading today.

this is not possible for precede.

26) *John preceded, coming through the door.

27) John preceded everyone, coming through the door.

4.9 The Expression of Direction, an Elaboration of the Expression of Goal

A final use of these prepositions which we must discuss we shall call the expression of direction. These appear at first as elaborations of either the locative expressions or the expressions of goal.

We have an elaboration of a locative expression in the sentence

1) John ran in front of the house.

If we mean that John ran along a path which goes in front of the house, passing the house, we have expression of direction. All the prepositions given above except after and along with which are only expressions of accompaniment, can be used in this sense. The essence of the expression of direction is the specification of the path along which the theme is traveling, but not to indicate any necessary goal. Consequently it will appear that all our paraphrases have along in them.

However, note that we cannot have the prepositional phrase preposed for this sense, as we can the usual locatives which are outside of construction with the verb. In the sentence

2) In front of the house John was running.

we cannot mean that John crossed in front of the house. Similarly, the expression of direction cannot occur after an expression of goal, naturally:

3) John ran into the house in front of the tree.

Although it is natural to say

4) John ran in front of the tree into the house.

in the appropriate sense. This suggests that we have here a construction which is generated in the same constituent as the expression of goal, in construction with the verb. It will be seen that it is along which is basic here, being an expression of goal.

All the expressions of goal may be used in the sense of expression of direction. For to we have the form toward, which means 'along a path to'. But into may be used in this sense, too, there being no form 'intoward'. Similarly all the other expressions of goal.

5) John aimed into the room.

6) John headed toward the river.

7) John headed under the bed.

Note that head and aim do not take to, but must take toward, and hence we know that the above expressions must also have toward:

8) *John headed to the river.

Most likely such adverbs as up, down, in, out are actually prepositional phrases expressing goal. These all take ward, e.g., upward, which changes the sense in the same way that toward varies from to. Upward means 'along a path up'. Note that we cannot say

9) *John headed up.

but must say

10) John headed upward.

Ward is a suffix that productively can be used to stand for toward. For example,

11) John ran toward the ocean.

12) John ran oceanward.

13) John was standing several feet toward the ocean of me.

14) John was standing several feet oceanward of me.

Consequently the manifestation of ward with the adverbs above may signify a toward, and hence a to, at an underlying level.

Through is similar to the above in that it is an expression of goal meaning approximately 'from one end to the other end'. It may also be 'along a path from one end to the other', with the modification discussed here. Across and sometimes over would be similar in that they may express a transition 'from one side to the other'. These paraphrases are only approximate, however. Through has the quality of motion inside of something, while across may be on top of

something. Along can be used for expression of direction meaning 'from one spot to another one'.

Across, along, over, and through have the properties that would lead us to generate them in construction with the verb as an expression of goal. Thus, they are not preposable:

15) *Through the tunnel John was running.

16) *Across the bridge the horse galloped onto the field.

They also permit expressions of goal to follow them:

17) The horse galloped across the bridge onto the field.

But they prefer the locative expression after them. Compare:

18) The mole burrowed through its tunnel in back of the house.

19) The mole burrowed in back of the house through its tunnel.

These prepositions can be used in a nonMotional sense too, but only in construction with the verb:

20) The ladder lay across the road.

21) *Across the road the ladder lay on the pavement.

22) The ladder lay across the road on the pavement.

If we take seriously the meanings of these prepositions as being represented as such in the prelexical structure then we have indeed expressions of goal; instead of naming just the goal or the source, however, we have a representation of a source-goal pair within the word itself. This simplifies the prelexical structure immensely.

The verbs miss and pass may be thought of as incorporating away from and by used in this sense, respectively. Thus compare the sentences:

23) The bullet sped along a path at a place away from me.

24) The bullet missed me.

25) The man is going along a path at a point by the house.

26) The man is passing (by) the house.

We see that for miss the incorporation is obligatory whereas for pass it is optional.

5. SOURCE-GOAL PATTERNS

5.1 Homogeneity of Source-Goal Patterns

We have seen that there are various types of transition expressed by a

to-from pattern: namely, the Positional, Possessional, Identificational, and transitions of Circumstance expressed by noun clauses or the object of prepositions. It appears to be a fact that these parameters cannot be mixed within one sentence. That is, if one of the prepositional phrases represents a transition of some particular type, the other does also.

Thus, among the Positional transitions, if we say

1) John sent Bill a book.

we do not necessarily imply that the book came to belong to Bill. Also we do not imply that Bill once owned the book with

2) John received a book from Bill.

We do not necessarily mean either that the book came to belong to Bill or that the book ceased to belong to John. We only indicate a change in the position of the book. The same situation is clear in the sentences:

3) John threw the ball to Bill.

4) John rolled the ball to Bill.

5) John drifted the ball to Bill.

6) Bill caught the ball from John.

7) Bill brought the book from John to Alice.

A phenomenon similar to this can be seen with simple verbs in which there is no prepositional phrase incorporated in the subject position. The subject is the theme. For example, with the verb travel, the normal order is the from prepositional phrase followed by the to phrase. Thus we have:

8) The message traveled from Bill to Alice.

but there is a difference in the sentence:

9) The message traveled to Alice from Bill.

Also we may have localities specified instead of Human nouns in

10) The message traveled from New York to Philadelphia.

Although, again, we do not have the same sense in the sentence:

11) The message traveled to Philadelphia from New York.

One cannot read this sentence in an uninterrupted tone of voice as one can for the from-to patterns in some of the sentences above. A pause is necessary between the phrases, indicating that they are not of the same immediate constituents. The from phrase, appearing after the to phrase, seems to be an addition to the regular statement of the goal of the motion.

The second prepositional phrase in from therefore may be considered to belong to a separate, though incomplete, from-to pattern, from the one to which

the initial to-phrase belongs, also incomplete. This suggests that we might have more than one complete from-to pattern. Consider the following sentences:

12) The message ((traveled from New York)(from Bill to Alice).)

13) The message ((traveled (from New York to Philadelphia))(from Bill to Alice.))

We have added parentheses to indicate the immediate constituent structure intended. These extended constructions may seem very awkward, and stylistically better paraphrases may be found. However, any restriction on them I would attribute to either the interpretive component, in the case that the sequence was contradictory or otherwise nonsensical, or to stylistic factor or factors regarding the performance of the speaker, not his competence. That is, such sentences may be omitted by blocking after the prelexical generation, if desired. Such blocking may be due to logic, to stylistics, or to factors in performance. Between the two source-goal patterns one pauses.

It will also be necessary to consider that the prelexical structure permit freely extended generation of from-to patterns to permit such sentences as

14) The message was carried across from New York to Philadelphia.

15) John ran down off of the stage from his prescribed position.

Here we would like to say that down, across, and many like it, are representations of expressions of goal, across being a complete from-to pattern, such as 'from one side to the other'. If the prelexical structure generates simply these from-to patterns, freely, leaving it up to stylistics or performance, etc., to cancel out some possibilities, e.g., because of length, we will have a very simple underlying system. Across may then be mapped onto one appropriate from-to pattern.

The important point here, however, is that the locality transition and the Human place transition are kept separate from each other. Thus in the following sentences we do not have source-goal patterns, and there is a necessary pause between the prepositional phrases:

16) The message traveled to New York from Alice.

17) The message traveled from New York to Alice.

18) The message traveled from Alice to New York.

These sentences mix Human place nouns and locality nouns but they cannot be considered to fall into a source-goal pattern. They should be read, if permissible, with a constituent structure such as ((traveled from New York)to Alice), whereas for a source-goal pattern we have the from and to phrases in the same immediate constituent. In this same sense, in which we have two separate but incomplete source-goal patterns we may say

19) The message traveled all the way to New York to Alice.

which is similar on the prelexical level to

20) The balloon floated up to the ceiling.

although certain stylistic considerations may not accept it.

We may interpret the possiblities for send in this light. That is, consider the possibilities:

21) John sent the message to New York.

22) John sent the message from New York.

23) John sent the message from New York to Philadelphia.

24) John sent the message to New York to Bill.

25) John sent the message from New York to Philadelphia to Bill.

In the above, the interpretation that the from-phrase is a part of the noun phrase which it immediately follows is possible, meaning 'a message which is from New York'. However this has a different intonation, indicating that the constituent structures are different. If we have a relative clause, the noun and prepositional phrase belong to a constituent to which the verb does not. However, if the prepositional phrase is part of the source-goal pattern then it goes with the verb.

The source-goal pattern of locality above may be acceptable additions to the source-goal pattern for Human nouns, of which the from-phrase is in the subject. But we cannot have more than one pattern for Human nouns. Consequently, though from-phrases are possible, if they have Human nouns as objects, they are not acceptable at all:

26) *John sent the message from Bill.

Another example of the same sort is the verb throw, which also, like send, has a from prepositional phrase in the subject.

27) John threw the ball to the right side of the street.

28) John threw the ball from the left side of the street.

29) John threw the ball from the left side to the right side of the street.

30) John threw the ball to the right side of the street to Bill.

31) John threw the ball to Bill from the left side of the street.

32) John threw the ball from the left side to the right side of the street to Bill.

For the parameter of possession one also can claim fairly well that both the to and the from prepositional phrase must imply a transition of possession. Thus in both

33) John sold a book to Bill.

and

34) Bill bought a book from John.

clearly John loses what Bill gains. This also holds for the pairs loan-borrow, rent-rent, etc. It seems to be true for give. Obtain however seems to be vague about it. In

35) John obtained a book from Bill.

it doesn't seem essential that Bill first have possessed the book. However perhaps it is vague as to whether or not John actually came to possess the book. If this is true then give and obtain do not constitute a perfect pair. In

36) John lost the book to Bill.

there is a clear transition of possession in that clearly John has ceased to own the book as Bill came to possess it.

It appears that the relative freedom for extended iteration of source-goal patterns is possible only for Positional transitions, and not for the Possessional. Thus send, receive, travel, transfer, bring, etc., will allow this. This is so even if one of the source-goal patterns has Human objects. But the Possessional, which has Human objects, permits only one source-goal pattern. Compare:

37) John brought the letter to New York to Bill.

38) *John gave the letter to New York to Bill.

Essentially it is not possible to have a locality as the goal of possession. We must have a Human object here, and once specified it would be contradictory to specify any other Human, whereas for the Positional we can have different degrees of specificity. Compare also the from-phrases in the pair:

39) John received the book from New York from Bill.

40) John bought the book from New York from Bill.

Both of these can have the interpretation that we have 'the book which is from New York'. However, only for the former can we have the from-phrase a pattern of the verbal expression. To see this, note that we can have receive with pronoun instead of the book, which cannot take a from-phrase derived from a relative clause:

41) John received it from New York.

But in order for the following sentence to be acceptable it is necessary to personify New York:

42) *John bought it from New York.

For the transition of Identification, it is certain that both the to and the from prepositional phrases have objects of the same type. Thus we may not say something like:

43) *John changed from a catholic to New York.

44) *The carriage turned from a beautiful coach into the waste basket.

45) *The oasis was transformed from little more than a well to Bill.

Within the Identificational parameter we cannot have mixing of types either. We can say

46) John turned from cook to physician.

47) John turned from a boy into a man.

But we cannot say

48) *John turned from cook into a man.

49) *John turned from a boy to physician.

There are many other such cases as this.

The fact that the Possessional and Identificational differ from the Positional verbs in that they permit only one source-goal pair may be thought to follow from the fact that the specifications for possession and identity, once made, cannot be refined or elaborated upon. They are automatically of absolute specification. Position may be specified to ever higher degrees of accuracy.

For the expression of goal using other prepositions there is the same restriction. Thus we prefer to say

50) The ball rolled out of the house into the hole.

to

51) The ball rolled into the hole out of the house.

At least we have the same distinction in possible intonation patterns. Similarly for other prepositions consider the pairs:

52) John ran from under the shed into the house.

53) John ran into the house from under the shed.

54) The horse galloped from in front of the tree (to) under the tent.

55) The horse galloped under the tent from in front of the tree.

56) The bird darted from above the house to above the tree.

57) The bird darted above the tree from above the house.

Thus we see that the complex prepositions which are really based on the simple prepositions TO and FROM fall into the same pattern. They are generated by the same constituent structure rules as already given. The NP, or noun phrase, is simply of a different nature. Instead of having some ordinary noun we have for from above for example, 'from a place above'.

Apparently since the actual noun governed by these prepositions is the same there is no problem to mix several prepositions in the same basic source-goal

pattern. As seen we have under and in, in front of and under. There seems to be no restrictions here. The order, however, remains significant.

It is not possible, however, to mix the basic prepositions, simple from and to with the others compounded of from and to. Thus we do not have source-goal patterns in

58) The horse galloped from in front of the tree to the tent.

59) The horse galloped from the tent to in front of the tree.

60) The dog ran from under the shed to the house.

61) The dog ran out of the house to the shed.

62) The bird darted from above the house to the tree.

63) The bird darted from the tree above the house.

In other words, here we have the same restriction that the two members of a source-goal pair be sufficiently similar in type to be conceived of as a single event. This also holds between the prepositions, to and into, as in example 61) above. Note that we do not claim the above sentences are ungrammatical at all. We claim merely that the two prepositional phrases do not form a unit.

Note that when into and out of are used together we can say

64) The ball rolled out of the house and into the hole.

Also for off of and onto

65) The insect crawled off of the table and onto my knee.

However, this is not possible for from and to:

66) *The ball rolled from the house and to the tree.

Nor is it possible with any other complex prepositions:

67) *The horse galloped from under the tree and under the tent.

68) *The bird darted from under the shed and into the barn.

69) *John ran from under the shed and into the house.

If we have out of and onto combined, it is possible:

70) The ball rolled out of the box and onto the carpet.

And similarly off of and into can be used together. We noted before that all the complex prepositions are basically from or to. For into and onto there has been, at least on the surface, a metathesis of the preposition and part of the object. Consequently it appears that the conjunction cannot appear if we have either a FROM or a TO in initial position. We may claim that there is a conjunction that has been deleted, obligatorily in the case of either a FROM or a TO in initial position. However, this cannot be sentence conjunction because when

there is no conjunction apparent, i.e., this conjunction has been deleted, there is no possible sense that both events occurred at different times. This is possible when we have a conjunction. We can say, for example:

71) The ball rolled out of the box and into it.

which comes from

72) The ball rolled out of the box and it rolled into it.

Though the from-to pattern, and successive patterns, may be a kind of conjunction, we cannot contend that it is sentence coordination and will generate the possibilities by simple recurrence.

Within a particular parameter there is no difficulty in formalizing this phenomenon of consistency. We merely say that if one object of the source-goal pair is of a certain class, the other must be of a sufficiently similar class. This may probably be best treated by interpretive semantics. However, if given a verb that takes source-goal pairs of a certain type, it is necessary that this fact be marked in the lexicon. For example, for a positional verb such as roll it is necessary that all its from-to patterns be positional. Either Human place nouns, localities, etc., will do. That these classes within a parameter cannot be mixed within a single source-goal pattern can be handled by an interpretive rule, as mentioned above.

However, it is necessary for roll that we exclude all Identificational transition such as the verb turn takes. This fact must be marked in the lexicon. The question is where. It would seem to be a waste to mark the prepositions, because in many cases it is not necessary to specify any preposition at all in the lexicon. Roll is such an example, which does not require preposition in its environment. Of course it would only be necessary to specify one; but then there would be the question as to which one. We would not want to mark the node dominating the source-goal pair, because this would reduce the simplicity gained by making a parallel among all the source-goal pairs. We could no longer call them the same structure in the underlying system. In addition, there often seems to be no need to specify a verb as necessarily taking a source-goal pair at all, as already mentioned. Finally, there is the possibility of marking the verb. This alternative has been chosen because it avoids all the difficulties mentioned above and affords the desired simplicity. The verbal element then names the kind of transition implied for all its from-to patterns and lexical elements must be chosen accordingly. For the Positional, as noted, we can have more than one such pattern.

5.2 Simplification of a Secondary Expression of Goal

The order of successive positive prepositions and the order of successive negative prepositions is preferably from the general to the specific. Thus the first sentence of the pairs below is preferable to the second:

1) John sent the book to New York to Bill.

2) *John sent the book to Bill to New York.

3) The duck swam from the shore from the tree.

4) *The duck swam from the tree from the shore.

5) The bird flew into the house out of the tree from its nest.

6) *The bird flew into the house from its nest out of the tree.

In general it appears that when we have the phrases ordered from specific to general it is necessary to put the preposition in a different form. Namely it appears that the directional from or to is converted to a positive preposition (nonMotional):

7) John sent the book to Bill in New York.

8) The duck swam from the tree at the shore.

9) The bird flew into the house from its nest in the tree.

Thus to in 'to New York' must become in. This is merely the only stative preposition that can occur before names of cities. We do not have 'at New York'. The simple from becomes at, as will to. Out of and into become in. Off of and onto become on. In the above we do not necessarily have a relative clause. If we did it wouldn't occur with proper nouns or pronouns. We do have:

10) John sent the book to me in New York.

But with such a verb as give we do not have to New York. Consequently we do not have

11) *John gave a book to me to New York.

But

12) John gave a book to me in New York.

is acceptable. However here we must have a sentence adverbial in New York since we can prepose:

13) In New York John gave me a book.

But for send these are distinct things. We have

14) In Chicago John sent a book to me in New York.

But we do not have:

15) *In Chicago John gave Bill a book in New York.

Thus we see that if we have two prepositional phrases in order, from the specific to the general, which are of like value, either both positive or both negative, the second becomes positive and nonMotional. In other words, since all these prepositions are basically TO with an optional NOT following, as seen in sections 4.1 and 4.5, we can say that we end up with AT only for the second preposition. The mechanics of this transformation can be formulated as follows:

R-11 <NOT> TO NP <NOT> TO NP

1 2 3 4 5 6 ===> 1 2 3 Ø AT 6

The diamond brackets mean that NOT is present in both instances or not at all. The result is really a simplification, the form being neither Motional nor negative.

This rule must apply after the rule in 4.6 which makes all prepositions in construction with a Motional verb basically TO. Both of these transformations must apply before lexical items become mapped onto the prelexical string, since they operate on prelexical formatives. There will be further reason for assuming the above simplification rule applies before prelexical items are added to the string. (See 6.4.)

5.3 The Nature of Away and Other Particles

Away appears to be a form that substitutes for a to-phrase. Thus in:

1) The duck swam away from the boat.

we actually have a source-goal pattern. The relative order of the to and the from phrases has been reversed, however. Thus note that both sentences below have the same feeling of double specification:

2) The duck swam away to the boy.

3) The duck swam to shore to the boy.

That is, in the above we have two source-goal patterns, each of which has only the to-phrase. Similarly, in a sentence such as

4) The duck swam away from the boat to the shore.

there is a syntactic ambiguity. We may have either of the two parenthesizations:

5) The duck swam (away from the boat)(to the shore).

6) The duck swam (away)(from the boat to the shore).

That is, the away may either belong to the from-phrase to form one source-goal pattern, or it may be alone in its own unit, the following two prepositions forming a unit. If we have:

7) The duck swam from the boat away from the shore.

it is clear that the away must go with the last from-phrase because it must always precede the from-phrase it goes with. Naturally we can say sentence 1) with the constituent structure implied by:

8) The duck swam (away)(from the boat).

But sentence 2) cannot be said in the form in which the away and the to-phrase belong to the same constituent. That is, we do not have the sentence:

9) *The duck swam (away to the boat).

It is not possible to say this sentence with the same intonation that groups the

elements of 'away from the boat' in a separate unit.

Away may not be used before from when we have as its object a prepositional phrase in or on, although it is acceptable for other prepositions such as above, in front of, etc.

10) John remained away from in front of the mirror.

but not

11) *John remained away from on the carpet.

12) *John is standing away from in the room.

13) John remained off of the carpet.

14) John is standing out of the room.

The impossibility of away is also a fact for this use of from before other prepositions in sentences with verbs of motion:

15) *John ran away from on the carpet.

16) *John ran away from in the room.

At least the away cannot be a part of the same expression as the from-phrase. The impossibility of away in these circumstances indicates that the nature of away is that of a simple to-prepositional phrase expressing goal so that it is not compatible with a complex one such as from in.

The obligatory away with from for the locative expressions noted in section 4.2 now amounts to having an obligatory positive prepositional phrase. Note we can also say

17) The book is down from the shelf.

18) John is in from the garden.

However, it must be an adverb of the type above, since we still cannot have

19) *The car is at the corner from the house.

There are instances where away can be seen to take the place of a to-phrase. Note that it is somewhat awkward to say:

20) *The ball floated from the bottom of the pool.

However it is perfectly acceptable to say

21) The ball floated away from the bottom of the pool.

Here the necessity to have a to-phrase is satisfied by having away. We may say the above sentence with a to-phrase anywhere in the sentence.

22) The ball floated to the surface from the bottom of the pool.

23) The ball floated from the bottom of the pool to the surface.

Thus if we specify that float requires a to-phrase in such instances as these, we can predict that both away and a normal to-phrase will work. Note also that down, up, out, in, etc., all of which are to-phrases, satisfy float in this instance as well.

24) The ball floated up from the bottom of the pool.

25) The ball floated down from the surface.

It seems also that up, down, back, forth can be used for expressions of goal of a more particular nature. This would be the meaning of up distinct from upward, which is of the essence of toward. Thus a sentence such as

26) John ran up.

could indicate the achievement of some goal, e.g., of the highest point. Similarly for the others. Note that in

27) John ran through.

we also have the indication of a goal achieved, but we also have a source. Thus if we add a from-phrase to these sentences:

28) John ran up from the basement.

29) John ran through from the basement.

we have a very natural statement in the first sentence. This in fact may be the source-goal pattern, with the to-phrase first. Note that it is not grammatically well-formed to have the particle following the phrase:

30) *John ran from the basement up.

The second sentence above, however, seems to give the feeling of a from-phrase without any correlate to-phrase. This is so because the through is a complete from-to pattern itself, whereas up is only a to-phrase of some sort, and consequently the from-phrase must be in a different incomplete source-goal sequence.

Semantically there is difficulty in calling away a to-phrase. In general a paraphrase is possible using a from-phrase instead of away. For example 'go away' may be paraphrased approximately by 'go from the previous location'. It would be true to say, however, that such a from-phrase has the same meaning as the to-phrase in 'go to another location'. Somehow, in fact, this idea of other must be maintained with away. We cannot say that merely the idea of motion implies that the motion is to another place, since away appears in nonMotional situations. For example, in the sentence

31) All the workmen are away on vacation.

we must mean 'at another place'.

Such a word as another, however, must go with or imply a than. This is true for other than, more than, rather than. I would propose that such pairs of words are in actuality from-to pairs of an abstract nature. The first word, an adjective or adverb of some sort, is actually a to-phrase and than is essentially from. Note that from is used in the similar pair different from. And the

counterpart of other than used in front of the word it modifies is else from:

32) Bill was digging someplace else from where you are digging.

We can say that we have a more general object of at in these instances if we say that the idea of divergence is automatically attributed to these morphemes since they always appear with or always imply a from-phrase. That is, in the prelexical structure we will not have forms that become directly other, more, etc. Rather, we will have simply some forms meaning approximately 'at an identity', 'at a kind' or 'at an amount', which when in conjunction with a from (= not at) we imply the desired comparison. 'A man other than Bill' is approximately 'A man at an identity not at the identity of Bill'. 'Different from Bill' might be 'at a kind not at the kind that Bill is'. 'More than two dollars' would have to be more complex, since merely 'at an amount not at two dollars' may imply less as well as more, although it does imply some difference. Thus, we can say that in the prelexical string we have a simple at or to-phrase. An appropriate at or to-phrase in conjunction with a from-phrase may become a lexical item such as other, different, etc., all of which imply some kind of divergence between the elements in the comparison. That is, they imply a from. But this implication is due to the environmental requirements of the lexical items and need not be due to any elements or features of the prelexical system or to any especially designed features attributed to these lexical items outside of this environmental specification.

Away, we shall propose, is an at or to phrase of this type. We may say that in the prelexical structure we have what amounts to 'at a place', which when in conjunction with a from-phrase means away from, for example, 'at a place not at the door' is 'away from the door'. Just like other, else, different, etc., away may appear without the from-phrase present, although it is always implied. We can say that the from-phrase has either been incorporated or deleted in such instances.

In abstract usages the idea of from becomes an absolute necessity. In such expressions as 'fade away', 'die away', while there is an idea of motion of some kind, the goal of this motion is difficult to imagine. In

33) Slowly all Mary's energy trickled away.

it is not possible to think of Mary's energy going somewhere, although the fact that it is going from Mary is clear. In such abstract usages we would want to say that we only have a from-phrase in the prelexical structure, unless some abstract interpretation can be put to an expression 'trickle into the distance'. It might be possible to assume that away is a to-phrase in these instances also if a formative with some of the features of distance, but not all, could be found. Similarly, such an abstract formative would be necessary in

34) Keeping clean keeps disease away.

6. FORMALIZATION AND SOME CONSEQUENCES OF THE PRELEXICAL STRUCTURE

6.1 Constituent Structure on the Prelexical Level

We noted in 5.1 that the order of the prepositions in a to-from pattern was significant. This significance has an immediate manifestation in the stress pattern of the sentence. The stress pattern is indicative of the constituent structure of the sentence. Consider first of all such a pair of sentences as

1) The list goes from A to Z.

2) The list goes to Z from A.

Both of these sentences are acceptable. The first of these is more natural however, since it brings out the natural relationship between the letters more clearly. The first of these sentences brings out more clearly the transitional relationship, whereas the second indicates the end point and then as if a separate thought, indicates the starting point.

The first of the sentences above has the intonation pattern given by 2-3-4-1, in which the smaller numbers indicate greater stress. The constituent structure which will correspond to this and the sequence of applications of the nuclear stress rule to obtain it are given below. The nuclear stress rule assigns main stress to the rightmost stress marked 1 in a constituent. Essentially it lowers every other stress by one. Main lexical items begin by being marked with 1 stress. The rule then applies cyclically starting from the inmost parenthesized constituents outward. Thus we have:

```
Ex-1)   ( (the list) ( (goes) ( (from A (to Z) ) ) )
              1          1          1     1
                                    2     1
                         2          3     1
              2          3          4     1
```

On the other hand, the second sentence above is more natural with the stress pattern 2-4-3-1. The nuclear stress rule can apply to a different constituent structure to obtain this:

```
Ex-2)   ( (the list) ( ( (goes) (to Z) ) (from A) ) )
              1          1     1          1
                         2     1
                         3     2          1
              2          4     3          1
```

In other words, the two prepositions are not considered in one immediate constituent. Rather the first prepositional phrase is considered to form a complete unit with the verb, while the second seems to form the same unit but with the unit previously formed between the verb and the first proposition.

Sentence 1) may have the intonation of sentence 2) described above. However, the reverse is completely deviant. We can express these facts by following constituent structure rules. That is, we interpret the above to mean that the structure of such sentences as these consist of a number of prepositional constructions, which we will call P, in connection with the Verb. Each of these P may contain a from-to sequence in the given order, but may consist in either the from or the to phrase. The concatenation of Verb and P may then be treated as a unit which can be extended by a P again, and the process may reiterate. Hence consider the following rules:

R-1) Event → Theme + Qualifier

R-2) $\text{Qualifier} \rightarrow \left\{\begin{matrix}\text{Qualifier} + \text{P} \\ \text{Verb}\end{matrix}\right\}$

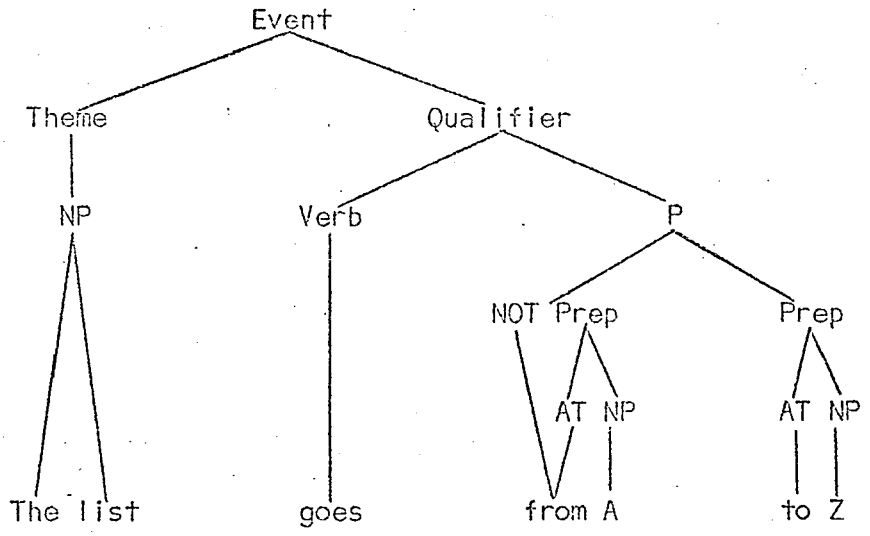
R-3) P → (NOT + Prep) (Prep)

R-4) Prep → AT + NP

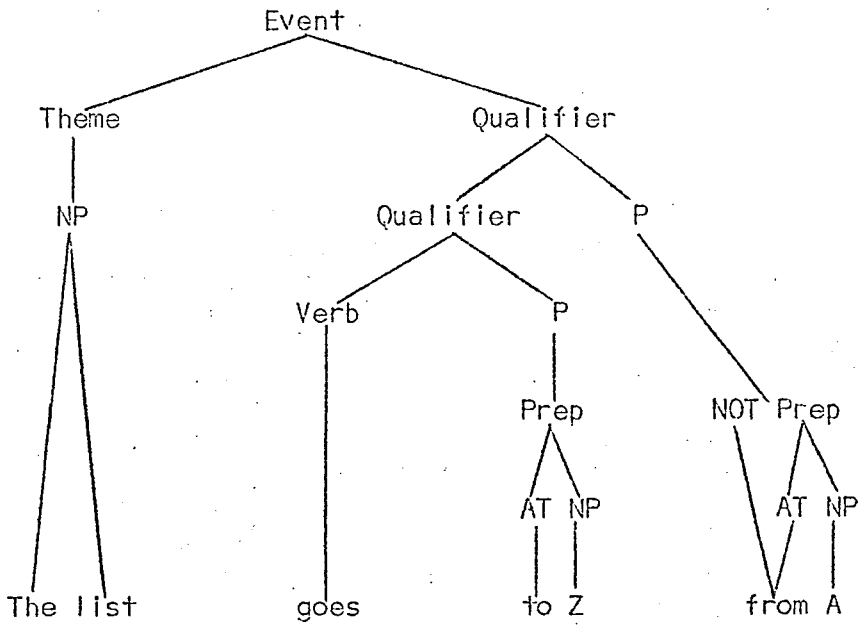
Here we have indefinite iteration of a node which we will call the Qualifier. We start with the node Event. Qualifier will continue to iterate until Verb is chosen. P stands for the prepositional phrase construction, and Prep for the underlying prepositional phrase. Whether we have AT or TO is determined by the nature of V, i.e. whether it is Motional, Durational, Possessional, or Positional, by the rule in 4.6.

Consequently we shall have for the constituent structure of sentence 1) and 2) respectively:

Ex-3)



Ex-4)



The intonation pattern of

3) The ball rolled to the bank to the man.

is the same as for 2) Namely 2-4-3-1, in which we have separate constituents necessarily. Here the pattern 2-3-4-1 is impossible since we cannot have a

source-goal pattern to enable these two phrases to be of the same constituent. Such as sentence as

4) The ball rolled to the bank from me to the man.

has a pattern which indicates that the final two phrases form a unit, thus

Ex-5)

```
( (The ball) ( ( (rolled) (to the bank) ) ( (from me) (to the man) ) ) )
      |        |        |          |          |
               2        |          2          |
               3        2          3          |
      2        4        3          4          |
```

It is not possible in the above to unite 'to the tree' and 'from me' in one phrase. In such a sentence as

5) The ball rolled from the hill to the bank from me to the man.

We have the pattern given as follows:

Ex-6)

```
((The ball)(((rolled)((from the hill)(to the bank)))((from me)(to the man))))
      |      |              |          |          |          |
                            2          |          2          |
             2              3          |
             3              4          2          3          |
      |      4              5          3          4          |
```

The important thing to notice is that ceteris paribis if the two phrases are in the same unit the stress increases from the left to right. However, if they are not, the stress decreases. Example 1) is uncomplicated by the part under study being at the end of the sentence. Hence we can see clearly that a pattern which would unite the first two phrases is not possible. This would be as follows:

Ex-7)

```
( (The ball) ( ( (rolled) ( (to the bank) (from the hill) ) ) (to me) ) )
      |        |              |          |          |
                              2          |
                     2        3          |
                     3        4          2          |
      2              4        5          3          |
```

This is not a possible intonation pattern for this sentence. Even though the morphemes were selected to go together, we cannot construe the first two prepositional phrases as one unit. At best, the above sentence can be construed as having three P units, all separate from each other, which would give the pattern 2-5-4-3-1. If we reverse the order of the first two prepositional phrases in the above sentence we would have:

6) The ball rolled from the hill to the bank to me.

which very naturally has the intonation pattern above.

In order to account for the generation of locatives and accompaniment forms we must permit free expansion of P in association with the Theme and with Event. This simply means that we must add the rules:

R-5) Theme → Theme + P

R-6) Event → Event + P

This would give the desired result. We therefore have for the set of rules for our prelexical structure:

R-7) $\text{Event} \rightarrow \left\{\begin{matrix}\text{Event} \\ \text{Theme + Qualifier}\end{matrix}\right\} + \text{P}$

R-8) $\text{Theme} \rightarrow \left\{\begin{matrix}\text{Theme} \\ \text{NP}\end{matrix}\right\} + \text{P}$

R-9) $\text{Qualifier} \rightarrow \left\{\begin{matrix}\text{Qualifier} \\ \text{Verb}\end{matrix}\right\} + \text{P}$

R-10) P → (NOT + Prep) + (Prep)

R-11) Prep → AT + NP

Since the accompaniment phrase is generated in construction with the theme we will need a transformation which permutes this phrase with the verb.

The node Verb will be developed into a set of features. Those which will be generated in the prelexical component are those of sufficient generality to be expressed here. For example, the feature V, for the verbal quality itself, which we have entered into our lexical statements. Also, we have the mutually exclusive features Motional, Durational, and Nondescript, and the mutually exclusive parameters Positional, Possessional, Identificational, Circumstance. Consequently we shall have a rule of the following type, which rewrites the node Verb as a complex of features. The braces represent optionality, while the comma represents co-occurrence, as usual:

R-12) $\text{Verb} \rightarrow \left[\begin{matrix}\text{V}, \left\{\begin{matrix}\text{Motional} \\ \text{Durational} \\ \text{Nondescript}\end{matrix}\right\}, \left\{\begin{matrix}\text{Positional} \\ \text{Possessional} \\ \text{Identificational} \\ \text{Circumstance}\end{matrix}\right\}\end{matrix}\right]$

It is true that certain lexical items may be used to express more than one of the mutually exclusive items above. For example move may be Positional or Possessional, and may be Motional or Durational; escape may be Motional or Durational, take may be Possessional or Positional. However, at any one time the verb must be just one of these. This restriction is similar to the requirement for homogeneity in from-to patterns. Consequently these features are not cooccurrent in the prelexical string, but may be cooccurrent in the statement of the environment of a lexical item. Such a statement would merely specify that a lexical item may have various options regarding the prelexical strings onto which it can be mapped.

There are certain inter-connections between the features above. For example the Durational and Motional have in common some verbal quality discussed in section 4.5. The Durational and Nondescript have it in common that they only have prepositions in the locative form. The Positional and the expression of Circumstance must have something in common since a great number of Positional verbs can be used with noun clauses as objects. Consequently we might want to subsume the Circumstance parameter under the Positional. The data regarding all this is not clear enough to formalize, however, so that for our purposes we have set up the features as independent of each other.

It may be repeated here that the prelexical structure is designed to cover all possible sentence patterns that appear on the surface. The particular environmental characteristics of a certain verb is a special case of what is possible in the prelexical structure. The vast number of verbs, which will be unmarked regarding environmental possibilities, can have all the possibilities inherent in the prelexical structure. These are such verbs as roll, fly, move, hurry, slide, etc. Environmental specifications and incorporation possibilities for certain verbs are reflected by restrictions on what part of the possibilities inherent in the prelexical structure actually occur. This will be discussed more fully in 6.3 and 6.4.

The adverbial particles such as up, down, across, over, through, away, as noted may all be considered prepositional phrases in the prelexical structure, which become manifested as single morphemes.

6.3 The Mapping of Lexical Forms onto the Prelexical String

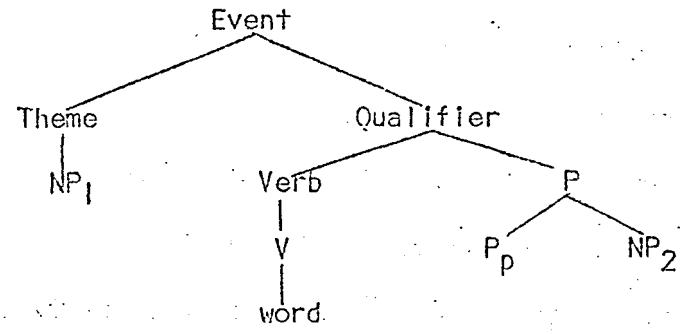
Let us now consider formally the means by which the prelexical constituent structure becomes manifested in terms of lexical items. Here we shall consider only verbs which are not causative, or whose subjects are not Agentive. Such verbs and their formalization will be discussed in Chapters 8 and 9.

Having generated the prelexical structure and given the lexical entries in the form presented so far, the mapping of lexical items onto the prelexical structure procedes naturally. If we have the theme as subject and no incorporation then the lexical entry would be as follows, taking word as the morpheme with the feature V

L-1) /word/ in env V

This is interpreted as a rule which says that a node characterized by V can branch into word. Since the theme is generated in subject position there are no special characteristics regarding the left-hand environment for word. Thus, it is superfluous to mention that the subject is the theme. Under ordinary circumstances it has to be. This will give us a tree such as:

Ex-1)



In other words, the P_p is not deleted but subsumed under the node which immediately dominates V, namely Verb. We assume this to occur by convention for processes of verbal incorporation. The end result is a Verb and not a preposition. If we had permitted a simple mapping onto the string without changing the constituent structure, then word would be as much a preposition as a verb since it would be dominated equally by Verb and P_p.

The string is left in a form similar to that which it would have if P_p had merely been deleted. It is probably true that deletion renders a verb subject to transformations that apply to transitive verbs, just as incorporation does, provided the rule for the deletion occurs prior to the transformational rule in question. For example, if we have deletion of for in

1) John fetched me the book I wanted.

the passivization rule must apply after this deletion, since we can have the passive:

2) I was fetched the book I wanted by John.

However, the deletion of for in certain complement constructions[9] apparently applies after passivization. A word such as yearn does not incorporate for since we must say:

3) John yearned for a book.

and not

4) *John yearned a book.

However, for is deleted in the formation of the complement from a noun clause object of for:

5) John yearned that he might go.

However, we cannot have the passive here.

6) *That he might go was yearned by John.

7) *It was yearned by John that he might go.

However expect incorporates for. We can say both of the following:

8) John expects that he might go.

9) John expects a book.

Consequently we can have the passive:

10) It was expected by John that he might go.

11) That he might go was expected by John.

Incorporation occurs very early and always before passivization, so that with respect to it the incorporating verb is always transitive.

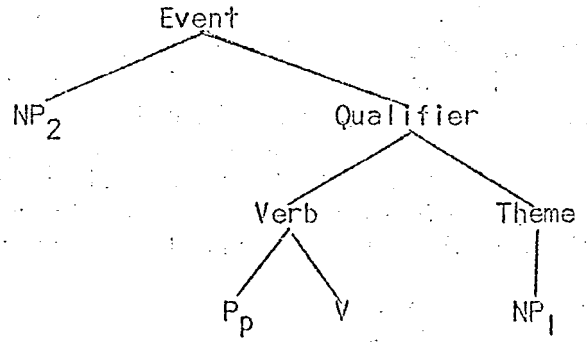
Among the verbs that must or may become transitive as above by means of incorporation we have already seen cross, pierce, enter, leave, ascend, descend, etc. Verbs that incorporate whole prelexical prepositional phrases such as rise, fall, cross, depart, enter, etc., will be treated in a parallel manner to that above except that the whole prepositional phrase becomes affixed to the node Verb with V.

In case we have a subject derived from a prepositional phrase, as, for example, in acquire, we have used a notation as follows, where word' ' represents the lexical item:

L-3) /word' '/ in env $\underline{P_p \quad V}$

Before the lexical entry can be made the theme and the prepositional phrase involved here must be reversed in the prelexical string. Thus, we must allow a transformation to set up a tree such as the following:

Ex-3)



The lexical item word' ' will be mapped onto the string P_p V, as given as its simultaneous environment in the lexicon. The transformation that will effect the necessary reformation in the prelexical string is as follows:

R-1) Theme V < Qualifier > P_p NP

1 2 3 4 5 ===> 5 4+2 1<3 Ø Ø

The plus (+) indicates that the two nodes so conjoined have the same immediate domination. The P_p becomes affixed with V to the node Verb. The less than and greater than signs mean dominated by and dominating respectively. Hence we specify the Qualifier which dominates V on the left and some prepositional phrase on the right. It is necessary to specify the Qualifier node for two reasons. We wish to say that we have the theme placed immediately following the verb but immediately dominated by the Qualifier node. Also, we wish to say that we may have intervening P's or Prep's or whatever which the qualifier may dominate between V and the prepositional phrase which metathesizes with the theme. We have such an intervening Prep with the word acquire. This is the case in the sentence:

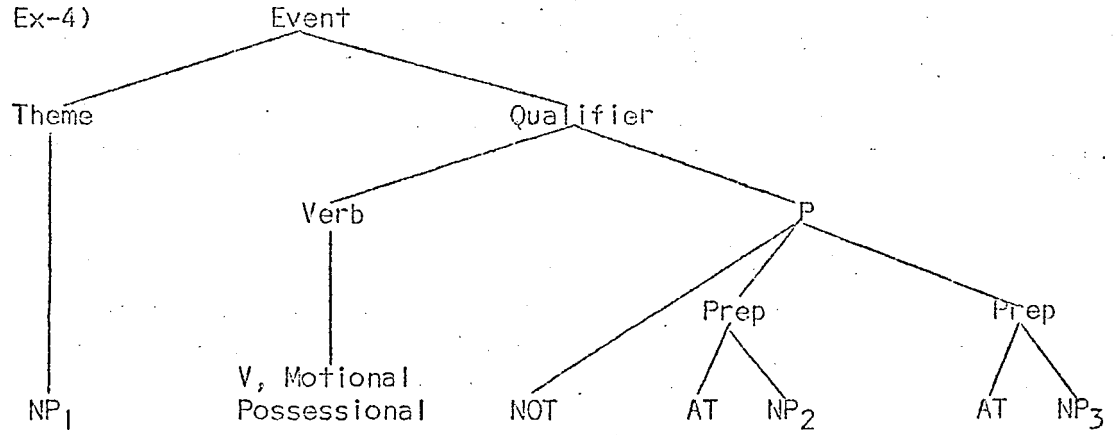
12) John acquired a book from Bill.

Since here we have reversal of a to-phrase with the theme, we have an intervening from-phrase. We have decided that normally the from-phrase is generated ordered before the to-phrase in the prelexical string, so that the from-phrase comes after the V and before the metathesizing to-phrase.

Let us go through the process whereby we generate sentence 12) above.

First we generate a prelexical string by the rules in section 6.1, resulting in the following tree:

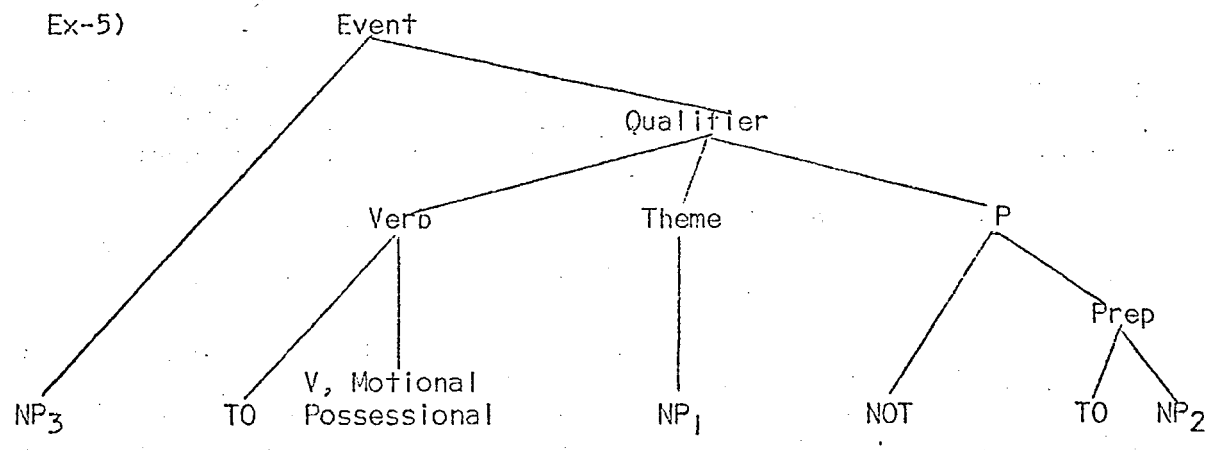
Ex-4)



Because we have a Motional verb, the AT's become TO's by the rule given in section 4.6. This will also occur due to it being Possessional. This rule happens to apply vacuously in this case, since the TO (or AT) is incorporated and doesn't appear on the surface to be manifested as to, and from is the form used both for the Motional and the nonMotional negative preposition.

The AT is the tree before NP_3 satisfies P_p in the transformation formalized above and NP_3 satisfies NP. Applying the transformation we obtain the tree:

Ex-5)



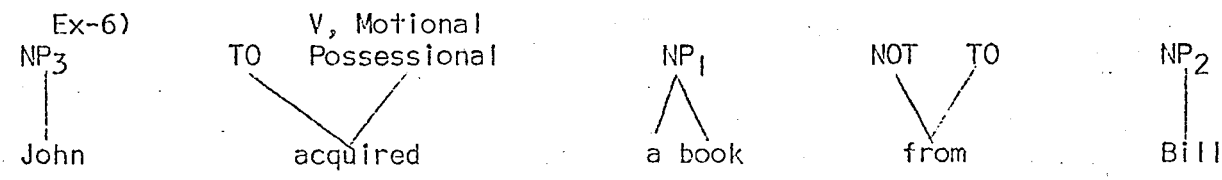
The lexical entry for acquire is essentially:

L-4)

/acquire/ in env $\underline{\text{TO}}$ $\underline{\text{V, Motional Possessional}}$

Consequently the phonological form /acquire/ becomes mapped onto the string in the designated simultaneous environment. NOT TO becomes from. NP_3 becomes John; NP_1 becomes a book; and NP_2 becomes Bill. We therefore have, for the pre-terminal and terminal levels of the tree:

Ex-6)



This gives us the desired result. Throughout we have not included modals and tenses of verbs. This is only to provide simplicity in our considerations and because our concern has not involved them.

Such transformations as given above to arrange the prelexical string in a form appropriate to the mapping on of our lexical items should not be considered a distinguishing part of the grammar in which they are of use. Their only statement that should be considered in judging the simplicity of a grammar is the statement in the lexicon of a verb for which they must have occurred. This is the marked lexical item, as opposed to the unmarked. The unmarked case has the theme as the subject and is much more common. The marked case has incorporation of a prepositional phrase to the left of the verb. Actually, we use the notion of incorporation here as a formal tool to indicate that the subject is derived from a prelexical prepositional phrase. Both this use of incorporation and the formalized transformation may be considered as potentialities of any grammar. They are heavily based on the formalism of our system. Their complexity should not be thought to imply that the grammar is complex, since the simplicity of a grammar will not be measured by them. The possibility of the manifestation of such a transformation in a grammar will not be distinguished from the possibility of marking a verb as having a subject derived from a prelexical prepositional phrase.

6.3 Environmental Possibilities of Incorporating Verbs

It appears that Motional verbs that do not incorporate any prepositions or prepositional phrase after them permit free extension of source-goal patterns, including the possibility of all expressions of goal, location, accompaniment, and direction. These verbs are the verbs unmarked in the lexicon. They permit, in other words, the complete range of possibilities generated by the prelexical constituent structure rules. In Table I below we list such verbs. This list is not exhaustive, but is meant to show that such freedom should be considered the general and lexically unmarked situation.

Some of the verbs in Table I have solely Agent subjects, i.e. causatives, with the object as theme while others have the theme as subject. This is the unmarked situation. There are some verbs also listed, such as send, throw, carry, etc., which do incorporate some phrases or are otherwise marked in the lexicon. But this incorporation does not seem to alter their freedom of manifesting the potentialities of the prelexical system very much, and hence they are included. For example, verbs like send have subjects derived from a from-phrase. The possibilities in the environment following the verb is thereby limited to some extent. This has already been treated in section 5.1. There are also some, like carry, which have subjects derived from an expression of accompaniment, which will be treated in section 7.3. These also are however relatively free in their use. Some verbs also optionally incorporate to before Human nouns, such as throw. They are, however, still relatively free in their expressive possibilities when they do not incorporate, and it is in this sense that we list them here.

Table I

move	travel	gallop	cruise	carry	crawl
flit	journey	walk	row	bear	push
shift	course	step	float	send	thrust
slide	migrate	promenade	swim	spurt	throw
glide	motor	strut	dive	scuttle	spring
roll	saunter	coast	fly	scamper	propel
flow	ride	skim	soar	race	fling
stream	drive	skate	transfer	dart	cart
run	trot	sail	transmit	hurry	pitch
drift	amble	navigate	transport	hasten	toss
wander	prance	drift	convey	creep	hurl

Among those which do incorporate, there appear to be types which permit freedom of expression, and types which do not. In Table 2, we list these verbs which incorporate but which do allow this freedom along with what we decided was a probable lexical entry for them. This subdivides into two lists. In Column I we have verbs which incorporate expressions of direction or goal. In Column II we have verbs which incorporate expression of accompaniment, as described in 4.8. We list alongside of each its incorporation in the usual notation.

In Table 3, we show verbs which are limited in some way as to their possibilities of expression. The lexical entries for them are also given. These also subdivide into two lists. In Column I we have verbs which incorporate expressions of goal. In Column II we have verbs which incorporate expressions of location.

For completeness, we include in the list of lexical entries the appropriate statement regarding whether or not the subject is an Agent. C-Agent stands for causative Agent. P-Agent stands for permissive Agent. If the subject is theme there is no mark. If the subject is an Agent we indicate this by indicating the incorporation of C-Agent or P-Agent, as the case may be, to the left of the verb. For example, raise has a causative-Agent subject, the theme being the object of the verb, and we write

L-1) /raise/ in env $\underline{\text{C-Agent}\quad V\quad (\underline{\text{UP(WARD)}})}$

Parentheses are used to represent options. Thus pierce may be both causative or have the theme as subject. Then we write

L-2) /pierce/ in env $\underline{(\text{C-Agent})\quad V\quad (\underline{\text{THROUGH}})}$

C-Agent before the verb, but not underlined indicates the subject is not only the theme, but also an Agent.

The notion of Agent will become clear in Chapters 8 and 9.

The verbs listed in Table I for the most part exhibit the full potentialities of the prelexical structure. The phonological matrices for these verbs are simply mapped onto a complex of verbal features without incorporation, dominated by the nodes Verb only. The complex or verbal features relevant for them consists in the features V, Motional, and Positional. Naturally certain possibilities will be limited on semantic grounds, due to the idiosyncratic character of the verb. For example, it is strange to say

1) The rabbit scuttled through the air.

Table 2

I

/rise/		V	(UP(WARD))
/raise/	C-Agent	V	(UP(WARD))
/ascend/		V	(UPWARD ON (NP))
/elevate/	C-Agent	V	UP(WARD)
/climb/		V	(UPWARD ON (NP))
/fall/		V	(DOWN(WARD))
/lower/	C-Agent	V	(DOWN(WARD))
/drop/	(P-Agent)	V	(DOWN(WARD))
/descend/		V	(DOWNWARD ON (NP))
/sink/	(C-Agent)	V	(DOWN(WARD)) (FROM NP)
/leap/	(C-Agent)	V	OVER (NP)
/pierce/	(C-Agent)	V	(THROUGH)
/cross/		V	ACROSS (NP)
/transport/	C-Agent	V	(ACROSS NP)
/recede/	C-Agent	V	BACKWARD
/advance/	(C-Agent)	V	(FORWARD)
/proceed/ /progress/		V	FORWARD

II

/precede/		V	BEFORE
/lead/	C-Agent	V	BEFORE
/chase/	C-Agent	V	(AFTER)
/follow/		V	(AFTER (NP))
/accompany/		V	WITH

Table 3

I

/enter/	(C-Agent)	V (TO IN (NP))
/infiltrate/	C-Agent	V (TO IN)
/insert/	C-Agent	V (TO IN (NP))
/depart/	C-Agent	V TO NP (FROM NP)
/leave/	C-Agent	V TO NP FROM (NP)
/arise/		V UP(WARD) (FROM IN NP)
/charge/		V (FROM IN NP)
/dodge/	C-Agent	V (TO DET N FROM (NP))

II

/hover/		V (ABOVE NP)

because scuttling is thought of as occurring on a surface. Similarly we cannot say

2) The bird flew on the ground.

for just the opposite reason. These possibilities will be eliminated by the strangeness or impossibility of semantic interpretation based on the purely semantic characteristics of the verb. Often these semantic requirements put restrictions only on the object of the preposition and not on the preposition itself. For example, it is possible to say

3) The rabbit scuttled through the room.

4) The bird flew strictly on the course for which it was trained.

Such restrictions have also been noted when we have incorporation of prepositions. The requirement that piercing be done through a continuous, resistant object eliminates the possibility of saying

5) *The train pierced the tunnel.

Though we can say

6) The train went through the tunnel.

We shall say that such restrictions as this are purely semantic and do not involve characteristics of the prelexical structure.

Let us take as an example the word soar, to review the range of possibilities. We have various expressions of goal in the sentences:

7) The bird soared out of the tunnel into the tree.

8) The bird soared into the tree to its usual perch.

9) The bird soared up away from the bullet.

10) The bird soared across the room.

11) The bird soared through the tunnel from Bill to Mary.

We have expressions of location in

12) The bird soared above the top of the tree for a long time.

13) Outside of the house the birds were soaring happily.

We can combine expression of goal with expressions of location in

14) The bird soared into the tree in front of the house.

meaning that the bird was in front of the house throughout the activity described. We have expression of accompaniment in

15) The bird soared after the airplane.

We have them in various combinations and ambiguities in

16) The bird soared after the airplane above our heads.

17) The bird soared before the airplane in the thin atmosphere.

18) The bird soared along with its companions up to the mountain peak beneath a clear blue sky.

In Table 2, Column II, we list verbs that incorporate expressions of accompaniment. These verbs set up no limitation on the expression of goal or on the expression of location. The reason for this is that the expression of accompaniment is generated in the prelexical string ordered before the place of generation of expressions of goal and location. Consequently, if we generate the expression of accompaniment it will always follow immediately after the verb, as seen in section 4.8. The lexical item that incorporates an expression of accompaniment can then be mapped onto the verb followed by such a prepositional phrase, leaving untouched whatever expressions of goal and location follow.

For example, the word chase with its object derived from an expression of accompaniment can have all the instances of expression of goal and location in the environment after this object that are indicated above. For one instance, we have

19) The man chased the rabbit through the tunnel into the forest.

However, because we have incorporation of some particular expression of accompaniment we cannot have another incompatible with it in the environment:

20) *The man chased the rabbit after the butterfly.

The statement in the lexicon for incorporation means that the incorporated element must follow immediately after the verbal complex in the prelexical string. Consequently, since if we have an expression of goal or accompaniment it must precede an expression of location in the prelexical string, the incorporation of an expression of location after the verbal complex automatically precludes the possibility of having an expression of goal or of accompaniment in the environment. The verb hover, given in Table 3, Column II, incorporates a generalized expression of location, OVER NP. Hence we cannot say any of the following

21) *The bird hovered to the tree.

22) *The bird hovered after the flying insect.

Because of uncertainty we have not listed any more verbs in Table 3, Column II. However, it may be that we can account for the idea of motion inherent in some verbs which nevertheless cannot take expressions of goal or accompaniment. For example, we may have incorporation of a generalized expression of location, e.g., AT A PLACE, in such verbs as wallow, grovel, pervade, jiggle, wiggle, twitch, jostle, oscillate. Some of these may take expressions of goal, e.g., 'twitch into the room'. But these seem to be extensions of the basic meaning.

The incorporation of an expression of direction in miss (ALONG A PATH AWAY FROM)[13] is difficult to understand regarding the possibilities that may occur in the environment. Miss takes no expressions of goal or accompaniment. We cannot say

23) *The bullet missed me into the tree.

although we can say

24) The bullet sped (along a path) away from me into the tree.

We have no means to explain this, unless we abandon the idea that miss incorporates such an expression of direction. For example, miss may be the negation of a sentence with an expression of goal, e.g., a negation of the prelexical string for hit, meaning 'the bullet didn't hit me'. Hit will be treated in section 6.4. Note here, however, that we cannot say, just as for miss:

25) *The bullet hit me into the arm.

but must say

26) The bullet hit me in the arm.

However, the problem is more complicated than this, because, though we can negate the sentence with hit above, we cannot have

27) *The bullet missed me in the arm.

When we have incorporation, there is the necessity that elements that appear on the surface be semantically compatible if they are all expressed overtly. Thus, for example, we cannot say either of

28) *The dog ran down up the mountain.

29) *The dog descended up the mountain.

Just as we cannot have particles such as up, over, away following a prepositional phrase in a surface string, so if a prepositional phrase is incorporated we cannot have such particles following. We can say

30) The bird flew away.

31) The dog ran up.

32) The boy walked over.

But we cannot say either of the pairs:

33) *The bird flew up the chimney away.

34) *The bird ascended away.

35) *The dog jumped over the fence up.

36) *The dog jumped the fence up.

37) *The boy walked across the field over.

38) *The boy crossed the field over.

However, these adverbial particles must occur, if at all, before an overt prepositional phrase:

39) The bird flew away up the chimney.

40) The dog jumped up over the fence.

41) The boy walked over across the field.

We shall not assume the order is inherent in the prelexical structure, since we do not have such particles as these until they become manifested as morphemes after the mapping of lexical items on the prelexical string. Consequently, such an ordering must be imposed after the manifestation of phonological forms. This may be by a transformation, which will block if incorporation has occurred, or by an interpretive method, the string blocking just in case the order is not correct.

Note that in the sentence

42) John fell back on the sofa.

we must have something like 'went down back' which does not appear on the surface. Similarly in

43) The plaster fell away.

44) The balloon slowly rose away.

45) The man crossed through.

we have forms in the prelexical structure that would be impossible on the surface:

46) *The plaster came down away.

47) *The balloon drifted up away.

48) *The man went across through.

If seems that if we have a simple adverbial particle incorporated, instead of a more complex prepositional phrase, we can have a particle following on the surface. Recall that the prepositional phrase incorporated in ascend is more complicated than that in rise.

Another manifestation of restrictions that apply both when one of the elements involved in the restriction is incorporated and when it is not, is the requirement for homogeneity in source-goal patterns, as discussed in 5.1.

Two of the words listed in Column I of Table 3, optionally incorporate out of X or obligatorily have it in the environment. Thus arise and emerge, always implies such a phrase, even in a sentence such as

49) John emerged into the kitchen.

in which the out is not at all visible. The sentences means 'come out into the kitchen'. That is we have the same as the optional incorporation of the adverb out, which we may consider a prepositional phrase. What is now peculiar about these words is that we cannot have a to-phrase after them:

50) *John emerged to the roof.

51) *The balloon arose to the ceiling.

Into is perfectly permissible:

52) The saplings arose into the sunlight.

This is also true for other words which imply the incorporation of out of, e.g., expel, eject, discharge.

53) The plant discharged its pollen uselessly into the corner.

54) *The plant discharged its pollen uselessly to the corner.

However, while to cannot be used, onto may be, and also other complex prepositions such as above in the expression of goal.

55) John emerged above the roof.

56) The fish arose onto the surface of the pond.

57) The plant discharged its pollen uselessly onto the table.

This appears to behave in the same way as noted previously in 5.1, in which

both members of a source-goal pair must be sufficiently similar. We noted that the simple prepositions from and to could not be mixed with the complex ones in the same from-to pattern. Consequently if we have an out of obligatorily with a certain verb, it is also obligatory that any other prepositional phrase that pairs with it must be compatible with it. That is, we must have a complex preposition, not to.

Similarly, when we have incorporation of into as in enter, insert, infiltrate, intrude, we have the same restriction. Here, however, we see that the negative preposition that pairs with the positive preposition incorporated in the verb must be complex. However, it is manifested as from and not off of or out of. From often has the prelexical structure of out of and off of.

58) John entered the room from the kitchen. (out of)

59) John entered the pit from the side. (off of)

But we cannot have

60) *John entered the house from the tree.

which can only imply the simple preposition. Similarly, note that away, which cannot be used before off of or out of, cannot be used before from in the above instances, corroborating the idea that we have out of and off of in actuality:

61) *John entered the room away from the kitchen.

62) *John entered the pit away from the side.

63) *John entered the house away from the tree.

There is a principle that applies especially for incorporation. If we have obligatory incorporation of some element, or if we choose the option of incorporation, then this incorporation must apply to all from-to pairs. In other words we have the rule that obligatory incorporation demands incorporation in the whole environment. This can be seen in such cases as the verb cross which obligatorily incorporates across. Thus it is natural, but perhaps redundant, to say:

64) John ran across across the dam.

for

65) John ran across along the dam.

However it is not possible to say:

66) *John crossed across the dam.

for

67) John crossed along the dam.

Similarly for dodge which incorporates away from optionally. If it is not incorporated we have, with parentheses indicating the constituent structure

68) John ((dodged away from the enemy) away from the shower of bullets.)

But if we have incorporation, we cannot say

69) *John ((dodged the enemy) away from the shower of bullets.)

This is so because taking the option of specified incorporation, we imply that there must be incorporation. In Table 2, Column I, we have incorporation of very particularized prepositions and prepositional phrases. For the most part we have incorporation of adverbial particles, which are expressions of goal with particular objects. The ON NP, incorporated in ascend and descend, while it has a general object, is really attached to the UPWARD by a relative clause, as in 'along a path which goes up which is on ...' may have such a locative expression. Consequently, in immediate construction with the verb, we have prepositional phrases incorporated which have only particular objects.

This means that the rule for incorporation above doesn't have too much effect on the possibilities that may occur in the environment. The incorporation of an up or an across, because they are particular, do not demand that any to phrase not appear in the environment. The specificity for incorporation is such that just those prepositional phrases with the particular object indicated must be incorporated. Hence, for obligatory incorporation, we do not have certain prepositions appearing in the environment. For example, though we have incorporation of over with jump, this does not interfere with having expressions of goal in the environment:

70) John jumped the fence from a place by the tree.

71) John jumped (over something) into the river.

72) John jumped from Bill to Mary.

However, with the verbs in Table 3, Column I, we have definite limitations on the possibilities for the expression of goal in the environment. This we shall say, in general, is due to the principle stated above, that whenever we have incorporation, whatever is specified as being incorporated must be effected throughout the environment. This is of course the essence of obligatory incorporation. Naturally it also applies when we have optional incorporation and have chosen incorporation, although often it applies vacuously in this case. The point is, however, that since the incorporations specified in Column I of Table 3 have objects of such generality, or the prepositions are of such generality, we automatically exclude any particular element from the environment which happens to be subsumed under the set of elements specified as being incorporated. For example, if we have incorporated TO NP, then no TO NP, no positive expression of goal, can occur in the environment.

Consider the word leave. We have here the incorporation of TO NP FROM (NP). Consequently we cannot have away, down, or any phonological form which includes within it a to-phrase. We also can neither have a simple nor a complex to-phrase in the environment. The specification TO NP includes the possibility of a complex goal phrase. The NP in such cases is simply of a special nature, e.g., 'to a place under the bridge'. Also, because from must be incorporated we can have no from-phrase.

73) *John left away.

74) *John left across.

75) *John left to the house.

76) *John left into the room.

77) *The bird left from the cage.

Depart is similar in that it incorporates a generalized to-phrase, but only optionally incorporates a from-phrase, and only the whole phrase.

78) *John departed to the store.

79) *The bird departed away from its cage.

Dodge incorporates a to-phrase, but only a simple one, namely TO DET N, which cannot be into, etc. Consequently, while we cannot say

80) *John dodged to the tree.

we can readily say

81) John dodged under the bridge.

82) John dodged into the tent.

The incorporation of TO DET N will not apply to complex prepositions. Stray is similar, since we have

83) John strayed into the forest.

84) *John strayed to the tree.

Semantically, note that leave and depart mean something like go away, where away is a kind of generalized to-phrase. (See 5.3.) Similarly stray and dodge also have the implication of a kind of away. However, note that for leave and depart it is possible to consider the inside, the underside, etc., as being left, while for dodge and stray we consider only the position of the object or some location. In other words, for stray and dodge we incorporate approximately TO DET N (DET = determiner, e.g. the).

There are certain environmental restrictions that are not so easily handled, however. Thus, though we can have complex prepositions together with simple prepositions, so long as they do not belong to the same source-goal pattern with non-incorporating verbs, if a complex preposition is incorporated we still cannot have a simple one following:

85) The bird darted out of its cage to the tree.

86) *The bird emerged to its tree.

87) The bird darted out of the room away from its cage.

88) *The bird emerged away from its cage.

Similarly for enter which incorporates into. We have into-to sequences for

non-incorporating verbs, but if into is incorporated we cannot have to, or away from, simple prepositions:

89) John ran into the room to the blackboard.

90) *John entered the room to the blackboard.

91) John ran into the room away from the man chasing him.

92) *John entered the room away from the man chasing him.

We must conclude that incorporating a complex preposition, positive or negative, eliminates the possibility of having anything but this in the environment. However, as seen for dodge, we might like to say that the incorporation of a simple preposition does not prohibit the appearance of complex prepositions from the environment. This is not the usual rule since the specification for a complex preposition does not include the specification of a simple one, and hence merely saying that the incorporation of a complex one implies the incorporation of a simple one doesn't work. This must be a special harmony rule, similar to the rule for homogeneity of source-goal patterns. It might for example be handled by marking the verb with a feature for having only such prepositions.

6.4 Consequences of the Simplification of Secondary Expressions of Goal for Incorporating Verbs

We noted in section 5.2 that in cases of sequences of two Motional prepositions, the second may become nonMotional.[14] This fact appears to apply even when the first prepositional phrase is incorporated. This has some very interesting consequences.

Among those verbs which incorporate down it is possible to have fairly free iteration of from-to patterns. It is also possible to have a simple positive preposition. In such a case we will have from the point of view of the prelexical structure a to-phrase (down) followed by another to-phrase. Consequently note that we can say

1) The ball dropped on the table.

2) The meteorite fell in the lake.

3) John lowered the ladder on the ground.

4) The apple fell at the foot of the tree.

The above are also possible with the Motional forms onto, into, and to; hence in this instance the formation of nonMotional prepositions is optional. This is precisely the same situation when down is overtly present.

5) The ball came down on(to) the table.

6) The meteorite showered down in(to) the lake.

7) John let the ladder down on(to) the ground.

8) The apple came down at the foot of the tree.

It is interesting to note that descend does not permit this. We cannot say

9) *The meteorites descended in the lake.

10) *The apple descended at the foot of the tree.

The reason for this is related to the fact that descend, even when it stands without an overt noun phrase after the verb, is 'go down NP' incorporating down NP. Note that after down used as a preposition it is not possible to have a nonMotional form, but the Motional form is possible:

11) John climbed down the ladder into the lake.

12) *John climbed down the ladder in the lake.

This is also true for descend used transitively:

13) John descended the ladder into the lake.

14) *John descended the ladder in the lake.

We noted in section 2.3 that down NP is really a compound preposition DOWNWARD ON or DOWNWARD ALONG, in which we have a preposition not expressing goal following the adverb down itself a prepositional phrase. We used this observation to distinguish descend from fall. The former obligatorily has DOWNWARD ON NP in the environment, optionally incorporating the complex preposition DOWNWARD ON. The word down as an adverb is DOWN in our prelexical structure, whereas as a preposition it is DOWNWARD ON. Descend obligatorily has DOWNWARD ON NP in the environment, the whole of which it may optionally incorporate. It may also optionally incorporate the prepositions DOWNWARD ON. Thus we would have the structure:

L-1) /descend/ in env: V, Motional; Positional; (DOWNWARD ON (NP))

Due to the fact that descend has a nonMotional preposition placed as it is in front of the Motional down, the formation of a nonMotional preposition out of some following one is prevented. Consequently we have this syntactic difference between descend and fall.

Under normal circumstances the formation of a nonMotional preposition is prevented if a nonMotional preposition intercedes as above. Thus notice the following, where we have across, which amounts to 'from one side to the other one'.

15) *John ran to Bill into the palace.

16) John ran to Bill in the palace.

17) John ran to Bill across the moat into the palace.

18) *John ran to Bill across the moat in the palace.

And the effect of this interposition is the same if the preposition is incorporated.

Ascend is the same as descend in this respect. Up parallels down.

19) *John ascended the hill at the top.

20) John ascended the hill to the top.

21) John ascended up the stairs onto the stage.

22) *John ascended up the stairs on the stage.

Sink doesn't permit the formation of nonMotional prepositions either. Thus although it is possible to have

23) The rocks fell down on the floor of the tub.

we cannot have

24) *The rocks sank on the floor of the tub.

Although it is possible to have

25) The rocks sank onto the floor of the tub.

we attribute the impossibility of nonMotional preposition formation here to the fact that sink must have immediately preceding the Motional preposition above a from-phrase, incorporated in the verb. In order for there to be nonMotional verb formation it is necessary to have either both positive or both negative prepositions. But it would not be possible if the from-phrase is incorporated to have another from-phrase in the environment. (See 6.3.) The formalization of the semantic fact that these verbs imply a departure from some specific place, e.g., from the surface, then has the syntactic reflex in the impossibility of nonMotional verb formation. In other words, we cannot say

26) *The rocks went down from the surface on the floor of the tub.

but must say rather

27) The rocks went down from the surface onto the floor of the tub.

just so, since sink incorporates down from NP here, we must have the Motional form.

Finally, lift is of the same simple nature as fall with regard to postverbal incorporation. Here we may have incorporation of up as a simple adverb. This allows us to have:

28) John lifted the book on(to) the table.

just as we can have:

29) John carried the book up on(to) the table.

The words rise, raise, retreat, withdraw, proceed, advance, progress do not behave in the expected manner. The final prepositional phrases cannot be expressions of goal below:

30) *The balloon rose in the cloud.

31) *John raised the pole at the ceiling.

32) *The army retreated in the mainland.

33) *The army advanced on the hill.

Although we can say, having expressions of goal,

34) The balloon floated up in the cloud.

35) John hoisted the pole up at the ceiling.

36) The army was forced back in the mainland.

37) The army managed to step forth on the hill.

All the above adverbs are goal phrases, in to, and hence the reduction occurs. However, note that it doesn't occur with the directional forms:

38) *The balloon floated upward in the cloud.

39) *John hoisted the pole upward at the ceiling.

40) *The army was forced backward in the mainland.

41) *The army managed to step forward on the hill.

This difference may account for the difficulty with the incorporating verbs above. For these adverbs the directional forms do not permit the reduction. Hence we might be led to say that the lexical forms for the incorporating verbs above consist in these directional adverbs, derived from toward, instead of to.

We now have the possibility of understanding several other words. Arrive and reach are certainly Positional verbs which imply motion. Yet arrive takes nonMotional prepositions:

42) John arrived at the house.

43) John arrived in the room.

44) John arrived on the platform.

It seems that all Positive nonMotional prepositions can occur after arrive, and that reach is of the same form except that it can have only the obligatorily incorporated preposition, at. Thus

45) John reached the platform.

doesn't imply that he got on it, for example.

We can treat these verbs very simply if we assume that they obligatorily incorporate a to-phrase such as 'to the goal', 'to the destination'. Then the formation of nonMotional verbs would follow as before. Also, since the incorporated to is positive, positive Motional prepositions become positive nonMotional ones. Negative Motional prepositions are not simplified. Hence we have

46) John arrived from England.

Arrive will have a structure such as:

L-2) /arrive/ in env — V, Motional Positional — TO THE GOAL

Since all prepositions are free to occur after the above, nothing further need be specified. Reach only has to, which is obligatorily incorporated, and consequently we have

L-3) /reach/ in env — V, Motional Positional — TO THE GOAL TO NP

where NP indicates that we have a simple noun phrase. Achieve and attain are similar to reach, except the object of TO must be somewhat differently specified.

Succeed and fail are interesting in this light as well. Succeed may be thought of as the same as reach except with having a clause for the object of the preposition. Thus we have

47) John succeeded in fooling everyone.

The nonMotional preposition in is conceivably originally into which has become reformed. The sentence may be paraphrased by 'John arrived at fooling everyone', which, although ungrammatical, can show that the senses are the same.

Similar to arrive are such verbs as settle, land, alight, which are Motional verbs which nevertheless take nonMotional prepositions.

48) The falling leaves settled on the ground.

49) The plane landed on the water.

50) The bird alighted on the branch.

Also, perch and rest can be used in a Motional sense.

51) Suddenly the sparrow perched on my arm.

But these can also be used in a Durational sense, as in

52) The bird perched on the branch for an hour.

All of these can be treated as incorporating some to-phrase which makes subsequent phrases nonMotional. Land would have something like 'to the land'.

Note that it might be possible to consider 'to his goal in the room' as a relative clause apposition, such as 'to his goal which is in the room'. However, it is possible to say the sentence with an intonation that clearly sets 'to his goal' and 'in the room' in different immediate constituents. The question 'at what place did John come to his goal' cannot come from such a relative clause apposition. Also, note that we do not have an expression of location here, since we cannot say 'in the room, John came to his goal'. We have, as established, an expression of goal that has become nonMotional due to its following another expression of goal.

Hit, in the sentence:

53) The ball hit the ground with a thud.

is similar to reach. We may say that we have something like 'the ball came to a surface on the ground' or something of the sort. Simply having 'the ball came onto the ground' doesn't give a proper paraphrase, just as for reach. It is necessary to have an intervening to-phrase in order to indicate that the principle goal need not have spatial extension. The object of to may be thought of as a point, whereas that of on(to) as necessarily having extension.

Another interesting verb is spread as in

54) Bill spread jam on(to) the bread.

Here we can say we have incorporation of something like 'to all places'. The above sentence then means 'move the jam to all places on the bread'. With theme subjects it apparently may be Motional or Durational:

55) The water was spreading in the corners.

56) The blanket spread on the ground.

Cover may simply be spread over. Compare the following:

57) The blanket spread over the ground.

58) The blanket covered the ground.

59) The water was spreading over the ground.

60) The water was covering the ground.

Here we have both Durational and Motional senses also.

Emerge and arise can be used in a somewhat different sense than previously discussed. In a sentence such as

61) Suddenly a blister arose on his nose.

62) A flock of birds emerged on the horizon.

Here we have incorporation of into view, or something of the sort. It then becomes obligatory to simplify the form of the Motional Preposition. We have two uses of these words. Compare the two sentences:

63) John arose onto the platform.

64) A dread arose in his heart.

The first of these may mean that a man came out of his bed onto the floor. The other makes no such commitment to physical motion. It incorporates into being, perhaps. Note that it is only if there is some positive prepositional phrase that it is possible to have a nonMotional preposition here. This means that it is only in this abstract sense incorporating into being. Hence it is strange to say:

65) *John arose on the floor.

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since it is unlikely John would come in being on the floor.

Similar to emerge and arise but more specific is appear. This obligatorily incorporates into view. Thus we have such statements as

66) A man suddenly appeared in the room.

meaning

67) A man suddenly came into view in the room.

For appear then we should have a lexical structure such as:

L-4) /appear/ in env — V, Motional Positional — INTO VIEW

While appear means 'come into view', disappear or vanish means 'go out of view'. Thus we can say the following two sentences with the same meaning:

68) The magician made the rabbit disappear out of his hat.

69) The magician made the rabbit disappear in his hat.

70) Suddenly the man disappeared from the corner.

71) Suddenly the man disappeared at the corner.

72) After such a war all life will vanish off of the face of the earth.

73) After such a war all life will vanish on the face of the earth.

Here we have the formation of the positive nonMotional preposition from a negative Motional one, according to the rule, since it follows a negative Motional one. This of course occurs when there is not incorporation, as well. We can have positive Motional prepositions here too.

74) John ran away and disappeared into the forest.

Note that this means that he disappeared from a viewpoint out of the forest, but that in the forest he might be visible. However in the sentence

75) John ran away and disappeared in the forest.

we may mean that he disappeared out of the forest, so that he is no longer visible in the forest.

At often appears in a Motional sense as in

76) John threw the ball at the window.

77) The matter came hurtling at the earth.

The meaning of at in this usage is similar to toward, but not exactly the same. Toward implies that the object merely approaches in the direction of the other

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object. At however still has the implication of ultimate contact or intended contact. In 'The horse galloped at the man' there is the implication that the horse is going to the man, whereas in 'The horse galloped toward the man' there is only the implication of direction. If we assume that this at is realy TOWARD A POINT TO, then the latter TO must become at following a positive goal phrase. Hence the first sentence above means

78) John threw the ball toward a point at the window.

This seems to match all right semantically.

Semantically the same at is used after certain words which appear only to take toward. Look takes just about any preposition, Motional and not, so long as it is not to.

79) John looked at himself in the mirror.

80) John looked under the bed.

81) John looked in(to) the room.

82) John looked on(to) the carpet.

If we notice how prepositions behave after 'toward a point' we see the following:

83) *John threw the book towards a point to the window.

84) John threw a book towards a point at the window.

The change here is obligatory because of the smallness of a point so that there can be no possibility of construing the first phrase to be more general than the second. However we can say:

85) John threw a book towards a point into the room.

86) John threw a book towards a point in the room.

That is, for complex prepositions it is optional. This is precisely what happens after look. Consequently we can say that look means 'send one's gaze toward a point' with toward a point obligatorily in the environment, optionally incorporated. The abstractness of the kind of motion implied here, whether or not a word such as gaze should be considered as underlying the sentences as the theme, will not be considered here, so that this shall not be explicitly formalized. However, the incorporation of toward a point followed by any preposition at all, explains what occurs.

Watch differs from look in the same way that 'threw to' differs from 'threw at'. Semantically, someone may look at something and not see it whereas if someone watches something he does see it. Hence watch we may say obligatorily incorporates to, with toward. Watch is similar to listen to. If someone listens to something he has heard it. For listen the to is not incorporated, although the whole prepositional phrase may be incorporated in 'John is listening'.

Aim takes expressions with toward. Aim does not take to, hence all the forms are basically toward.

87) *John aimed to the target.

88) John aimed on(to) the table cloth.

89) John aimed in(to) the room.

90) John aims towards the target.

91) John aimed towards the target.

But aim does take at

92) John aimed at the target.

Hence aim obligatorily has toward in the environment, and optionally incorporates a prepositional phrase with toward as does look. Assuming incorporation and the rule which changes Motional to nonMotional prepositions, we can understand exactly how we may have both Motional and nonMotional prepositions, but may not have to, but may have toward.

7. FURTHER SENTENCE TYPES

7.1 Positional and Possessional Transitions: the Absence of To

It is necessary to decide whether or not the absence of to when directly before the verbs is a case of transformational deletion or a case of incorporation. If the phenomenon is frequent and regular for a definable class of verbs, then it is better to consider it a rule and not a case of incorporation. But this does not seem to be the case. In addition to send, there are a large number of Positional Verbs which manifest the deletion of to, which we list in column I of Table I. In column II we have verbs of position which do not delete to, but which allow to in their environments.

Table I

I		II	
send	bring	release	convey
mail	slide	drift	lift
throw	hasten	pull	return
toss	lower	drag	transport
pass	pitch	carry	
hand	hurl	transfer	
roll	float	raise	
push	ship	deliver	

It seems possible to say:

1) John lowered Bill the ladder.

2) Alfred floated Bill the log.

3) Will you bring me a book?

However it is not possible to say:

4) *John raised Bill the ladder.

5) *Alfred drifted Bill the log.

6) *Will you carry me a book?

Although we may certainly have:

7) John raised the ladder to Bill.

8) Alfred drifted the log to Bill.

9) Will you carry a book to me?

It therefore appears to be the case that even fairly close semantic equivalents differ as to the possibility of the absence of to. It doesn't seem possible to find a regularity on which to base a rule. In fact, if we do compare the words in Column I with Column II, there is a vague sense of goal orientedness for those in Column I, which, we could say, is captured by the statement that they may incorporate to.

In general it is the case that if the to is not or cannot be in the following sentences the order must be permuted:

10) *Mary carried to John the book.

11) *Mary raised to Bill the ladder.

must also be permuted and in such cases as

12) *Mary sent to Bill the book.

13) *Mary threw to Bill the ball.

in which the option to leave to present has been taken. If the theme is extended, for example, by a relative clause, the permutation is not obligatory:

14) Mary threw to Bill the ball which he had received for Christmas.

If the theme is a pronoun, in general the permutation is obligatory.

15) *Mary threw to Bill it.

But if incorporation occurs the sequence is acceptable:

16) Mary threw Bill it.

However, there is the restriction on incorporation that the object of to must be either Human or be a word such as the government, the Jimmy Fund, the family, etc., which class we may say has the feature Organization.

17) John sent the Jimmy Fund part of his earnings.

But we cannot incorporate before nonHuman or nonOrganization nouns:

18) *John sent New York his car.

although we can say

19) John sent his car to New York.

Similarly we cannot say

20) *John lowered the ground the ladder.

whereas the sentence

21) John lowered the ladder to the ground.

is perfectly acceptable.

The regularity of this suggests that the order of the elements initially is theme followed by the prepositional phrase with to. This is the order where the prelexical rules would form. A permutation transformation then operates only when there is an Organization or a Human noun in the prepositional phrase, placing the to and its object after the verb. This rule must apply before lexical items are added to the string. The features Organization and Human must be marked on the string by this time. Incorporation will then occur when the to is in front of the verb, and the verb is so specified as to accept it. A later rule must permute these elements again in case the to is not incorporated.

The optional incorporation of an optional to is expressible in our system; thus for all those in Column I, except for hand, we have for example:

L-I) /throw/ in env V, Motional Positional (TO)

For hand, the parentheses cross the underline only, since to is obligatory in the environment.

For Possessional Verbs among those which delete to are sell, loan, lease, grant, offer, give, and serve. It seems however that donate, contribute, and lose cannot delete to.

26) *John lost Bill all his money.

27) *John contributed charity a small fortune.

Here we certainly would prefer

28) John lost all his money to Bill.

29) John contributed a small fortune to charity.

All these possessional verbs may stand without a prepositional phrase with to:

30) John sold two books already.

31) John offered two dollars for the book.

32) John has been leasing the apartment for a month.

Grant is somewhat doubtful:

33) *John granted a thousand dollars.

However, if sell, loan, lease, offer, serve, stand alone without a prepositional phrase adjunct it seems that they imply the transference of the theme to some person or organization. But not lose; in

34) John lost his money.

it does not imply that any person came into possession of it. However in examples 30) through 37) such a transference is definitely implied. This difference can be characterized by allowing optional incorporation of the whole prepositional phrase with to, for all the verbs except lose and possibly grant. For many of these to will be incorporable. This is optional incorporation of an obligatory environment, hence we will have, for a verb like grant or sell:

L-2) /sell/ in env FROM [V, Motional Possessional] (TO (NP))

the feature specifications for the nouns involved follow from the feature Possessional in the verb. The above prelexical structure represents either of two different incorporations from an obligatory environment.

Give may stand in the absence of the prepositional phrase only in the sense of donate or contribute. That is,

35) John gave a thousand dollars.

cannot mean that he gave it to a single person. This semantic peculiarity can be expressed by saying that give incorporates some possibilities of its obligatory environment. Give has in its environment a prepositional phrase with to with either an individual as object or some organization. Only the latter may be incorporated, which is the total environment for donate. For give the to may be deleted as well. Give may therefore be characterized by the prelexical structure:

L-3) /give/ in env FROM [V, Motional Possessional] (TO (N, Organization))

In other words we have the option of treating give exactly like donate (with the noun) in which the object of to has the feature Organization, and in which to alone is not incorporable, as in

36) *John donated money to Bill.

37) *John donated Bill money.

38) *John donated charity money.

39) John donated money to charity.

and for which the whole prepositional phrase may be incorporated

40) John donated money.

without the noun specified we simply imply the optional incorporation of to which must obligatorily stand in the environment. Thus for give in contrast to donate we allow deletion of to:

41) John gave the Jimmy Fund five dollars.

42) *John donated the Jimmy Fund five dollars.

Thus the deletability of to is not necessarily dependent on the distinction between the features Organization and Human. For give the possible appearance of both Human and Organization nouns for the object of to follows from the feature Possessional.

We do not, however, find it necessary to give a complete characterization of the environments and incorporation possibilities for all the verbs here, nor will we formalize the transformation involved. It is merely to be pointed out that it is considerably more efficacious to consider the absence of to to be actually incorporation. The variety of possibilities seems to favor such treatment.

7.2 Transitions Involving Information Nominals as the Theme

Verbs with abstract themes also manifest incorporation of prelexical prepositional phrases in the subject. The pair learn-teach is a reciprocal pair such as described in 3.2, and may be treated in the same way as the pair obtain-give. Here, however, the theme is not a concrete object, but rather a word such as story, speech, fact, etc. Whatever the characterization of this class of nouns, we shall label them with the feature Information. In the sentences

1) John is learning from Bill.

2) Bill has already taught John.

we see that we have the theme incorporated into the verb. Sentence 1) means 'John is obtaining knowledge' whereas sentence 2) means 'Bill has already given Bill knowledge'. In the sentences:

3) John learned that the earth was flat from Bill.

4) Bill taught John that the earth was flat.

5) John learned from Bill not to eat with his hands.

6) Bill taught John not to eat with his hands.

we have the complements of an incorporated noun. That we do in fact have a noun can be seen, since we have as an interrogative:

7) What Bill taught John was not to eat with his hands.

Consequently we see that we have an incorporated theme.

Formally then learn optionally incorporates some word with the feature Information. This is some generalization of all the words permissible for the theme when expressed. In other words the entire theme may be optionally incorporated, leaving the appropriate vagueness. We therefore have for learn,

approximately,

L-1) /learn/ in env TO V, Motional Possessional (N, Information)

For teach, we note that in the circumstances when to must follow the noun, it must be deleted.

8) *John taught to Bill that the earth was flat.

To Bill is restricted from appearing after the theme here.

9) *John taught that the earth was flat to Bill.

However, we can say

10) John taught the story to Bill.

We shall ascribe this deletion to incorporation as in 7.1. Although it is possible to say

11) John taught that the earth was flat.

without a to prepositional phrase, there seems to be the implication of understood communication. Hence the incorporation of a whole phrase as well:

L-2) /teach/ in env FROM Possessional (Information) (TO (NP))

Semantically, there is definite significance to whether we have the Possessional or Positional ascribed to the verb. When the theme is abstract referring to some information the significance remains. A verb such as explain is very similar to teach, although explain cannot delete to.

12) *John explained Bill the story.

13) John taught Bill the story.

14) John explained to Bill the story.

Semantically we then notice that teach implies that the person who is being taught does in fact learn, does in fact obtain knowledge. However, to explain may or may not mean that the person explained to understood. Thus, for example, there is no contradiction in

15) John explained to Bill how to solve it again and again, but Bill never understood.

whereas it is never logically sound to say

16) John taught Bill how to solve it again and again, but Bill never understood.

The same difference is observable in tell and say. The former omits to, whereas the latter cannot. Tell indicates that what is told is subsequently

heard whereas for say it is possible not to be understood. Thus one can say something to a wall, but one will never succeed in telling it anything. Consequently tell has the feature Possessional whereas say has the feature Positional.

Whatever the exact nature of the theme, the prelexical structure of say and explain in contrast to tell and teach, is approximately:

L-3)

	V, Motion	N
FROM	Position	(Information)

The pair write-hear exhibit the reciprocal relation in

17) John wrote to Mary that he would see her soon.

18) Mary heard from John that he would see her soon.

However the recirprocity is not complete, due to slight differences in the theme.

19) John wrote a letter to Mary.

20) *Mary heard a letter from John.

Nevertheless the essentials of the relation are explainable by the identity of the prelexical prepositional phrases.

A clear case of a Positional verb with an informational theme that also incorporates to is signal:

21) John signaled to me that he was through.

22) John signaled me that he was through.

There is also a clear case of a Possessional verb with an informational theme, like tell and teach, which, however, cannot incorporate to. In other words, communication is definitely implied but to must be manifest. This is the word communicate itself.

23) John communicated to me that he would not be finished on time.

24) *John communicated me that he would not be finished on time.

Consequently we see that deletion must be attributed to incorporation rather than grammatical rule in the case of abstract theme as well, due to the variety of possibilities. The frequency with which to is incorporable over that of other prepositions may be due to its being the most simple and basic one.

7.3 Reduplication of Subject Prepositional Phrases

Bring, take, and carry are certainly positional, yet very clearly their subjects are not derived from either a to or a from prepositional phrase. Very clearly it is not to since we can say

1) John brought the book to Bill for a few dollars.

Here we have a to-phrase already manifest. Also, this sentence cannot mean that John paid the money. It is unlike send which has a subject derived from a from-

prepositional phrase. The reason why in the sentence above John receives the money may be attributed to the fact that the subject is an Agent, as indicated previously. In addition we should distinguish bring and the others from such words as transport, convey, etc. These are different in the sense that for bring, carry, and take, the transported object, the theme, is accompanied in its motion by the subject, whereas for transport and convey this is not necessarily so. In

2) John transported the cargo to Bill by ship.

John does not have to be on the ship. However this is implied in

3) John brought the cargo to Bill by ship.

The subject of bring then must (in addition to being Agent) be derived from some prepositional phrase in the prelexical structure which indicates that the theme and the subject are positioned together.

These verbs have the peculiarity of taking prepositional phrase expressing the relative position of the subject and theme during the motion, an expression of accompaniment. However, note that it is not possible to reflexivize. We have

4) John brought a book with him.

5) John took his raincoat with him.

6) John carried the bouquet of roses with him.

Among other verbs of motion that show this phenomenon are pull, drag, trail, haul, tug, all of which must take a preposition that indicates that the theme is behind the subject. Namely behind, after, in back of. Thus we can say

7) John pulled the rug behind him.

but not

8) John pulled the rug ahead of him.

unless we mean an expression of goal. Here we intend the expression of accompaniment. Similarly, push must have a preposition indicating that the theme is ahead of the subject. Namely, ahead of, before, in front of. For example

9) John pushed the box ahead of him.

In the appropriate sense, we cannot say

10) John pushed the box behind him.

as this only indicates the expression of goal.

We noted in various prepositional expressions (4.8) if the object of the preposition is the same as the subject of the sentence, reflexivization is optional. Thus we can say

11) John rolled the cart in front of him.

12) John flew the kite behind him.

or

13) John rolled the cart in front of himself.

14) John flew the kite behind himself.

in which cases we may have either expression of position or of accompaniment. That is, either John is stationary and causing the theme to move at a place relative to his position, or he is moving with it, keeping the same relative position.

But in the case of the verbs described here, for the expression of accompaniment reflexivization is impossible.

15) *John brought the book with himself.

16) *John took the money with himself.

17) *John carried the money with himself.

For push, pull, tug, haul, etc., this is not so certain, however. The sentence

18) John pushed the cart in front of himself.

may conceivably mean the expression of accompaniment. We may therefore say that push, pull, etc., merely have restricted environments. But for carry, bring, and take we note that this phenomenon of the impossibility of reflexivization goes along with the impossibility for the object of these prepositions to be anything but a word with the same referent as the subject.

19) *John brought the book with Bill.

20) *John took the money with Bill.

21) *John carried the money with Bill.

For push it may be possible to say

22) John pushed the cart in front of Bill.

indicating the relative positions of the cart and Bill in motion.

It would seem that we should endeavor to explain these two phenomena: the impossibility of reflexivization and the necessity for identity of reference, by the same reason.

The semantic distinction betweeen convey and carry seems to be that in the latter verb the subject necessarily accompanies the motion, and not necessarily in the former. This suggests that we have incorporated in the subject a prepositional phrase with a preposition that would indicate this. Such a preposition would be one like with. In other words, we might say that in

23) John carried the book to Bill.

the prelexical form also serves to underlie 'The book went with John to Bill'.

Thus we may suppose we have the same phenomenon as described previously with the to or from incorporations into the subject.

For bring we have the lexical entry therefore

L-1) /bring/ in env WITH V, Motion Position (TO)

since it optionally incorporates to. (Cf. 7.1.)(We here disregard the fact that the subject is also an Agent.) This will be discussed in Chapters 8 and 9.

We saw in section 3.4 that incorporation into the subject is evidenced in certain stative verbs by the optional appearance of that prepositional phrase, with some redundancy:

24) The list includes my name in it.

25) The bucket contains water in it.

Here too it is not possible to say

26) *The bucket contains water in the vase.

The referents must be identical. Reflexivization is forbidden here too:

27) *The bucket contains water in itself.

Inanimate nouns do reflexivize, however, as in

28) It is axiomatic that the bucket contains itself.

29) It is axiomatic that the bucket is contained within itself.

Reduplication occurs with have

30) John has a book with him.

But for Possession it does not reduplicate. Thus we cannot say

31) *John has a book to him.

We must have reflexive here

32) John has the book to himself.

Have may be either Positional or Possessional. The subject is derived from a simple with or to-phrase but the latter is not reduplicated. We cannot say

33) *John has the book to Mary.

because of semantic implausability. Other prepositions do occur after have, however:

34) John has the book with Mary.

35) John has the book in the yard.

This repetition does not occur in verbs that are both Possessional and Motional either. There are no forms such as

36) *John obtained the book to him.

37) *John bought the candy to him.

For the Positional form, consider the sentence:

38) John received a book to him.

This does not seem to be possible. However, other Positional and Motional forms do show this repetition. Thus, among these that incorporate a from in the subject, we have this reduplication in throw, repel, hurl, etc. Thus we have sentences of the following type in which it is not possible to substitute any other Human noun for the object of from.

39) In disgust, John quickly hurled the slanderous newspaper away from him.

40) The mixture is intended to repel insects from it.

There are also words, Positional of course, which incorporate to in the subject and reduplicate accordingly. Some would be summon, call, attract:

41) John summoned his servants to him from their rooms.

42) John attracts women to him like a magnet.

We do not have possible here any other Human noun, nor can we reflexivize:

43) *John threw the newspaper away from himself.

44) *John threw the newspaper away from Bill.

The incorporation of a prepositional phrase in the subject is sometimes optional, however, as for send, repel, summon, and attract. In such cases we can have both some other noun and reflexivization:

45) John is trying to attract flies to the poison, but he only succeeded in attracting them to himself.

When the subject is not derived from a prepositional phrase it is purely Agent. However an inanimate subject cannot be Agent. Consequently we can never have:

46) *The poison is attracting flies to itself like a magnet.

but only:

47) The poison is attracting flies to it like a magnet.

For verbs of motion whose subject is purely Agent we of course must have reflexivization:

48) John transferred the book from himself to Mary.

49) *John transferred the book from him.

The last sentence is grammatical only in the sense that him refers to someone other than John.

It therefore appears that for positional expressions the prepositional phrase from which the subject is derived may be optionally expressed elsewhere in the sentence. If the rule that optionally effects this occurs after the markers for reflexivization are added, then reflexivization will be prevented for the redundantly expressed subject. More specifically we could have a transformational rule which would operate before lexical entries are established in the string, but after the markers in the string have been labeled for reflexivization. This transformational rule would simply reduplicate the prepositional phrase in subject position. Both the rule for marking reflexivization and this reduplication rule should necessarily follow the establishment of what prepositional phrase is to be the subject.

We must now reconsider the transformation of section 6.2 which sets up the string for lexical items to be mapped on when the subject is derived from a prepositional phrase. In order for reduplication to occur we must have the whole prepositional phrase in its original form, dominated by Prep, but to the left of the verb. That is, we must not effect the change whereby the preposition becomes dominated by Verb, alongside of V. The preposition and its object must still be dominated by Prep. However, the theme and this Prep will have been reversed with respect to their position relative to V. Thus we can write instead:

R-1) Theme V < Qualifier > (NOT)Prep

1 2 3 4 ===> 4 2 1 < 3 Ø

This is considerably simpler. We shall say that the preposition in Prep to the left of the verb is automatically, by convention, affixed to the node Verb, to the left of V, when we have incorporation of a prepositional phrase in the subject. This is the same convention that is used for post-verbal incorporation, in which the incorporated element becomes dominated by Verb to the right of V. Hence the two processes are analogous.

The above transformation will be considered in the same light as the one given in section 6.2. That is, it is still not to be construed as a distinguishing part of the grammar in which it is used. Its form now suggests, however, that having such a transformation amounts to saying that certain elements are freely permutable in the prelexical string. Only simple prepositions, to, from, at, with, and the complex in have been found to be manifested in the subject in English. The above formalization will allow for simple prepositions, positive and negative, to be established to the left of the verb. Also some complex ones, such as in, on, under, etc., whose complexity amounts to a complexity in their noun phrases. However it will not permit through, across, along, whose complexity is also based on their being from-to pairs. For this we would need the reversal to apply to P.

To the prelexical string to which the above rule has applied, morphemes must be marked for being reflexivized. Thus it is necessary that the referents of noun-phrases be determined at the prelexical level. After Reflexivization we can have a rule which reduplicates the prepositional phrase which appears to the left of the V, placing it to the right of V. Thus we have the rule:

R-2) (NOT) Prep V, Positional

1 2 ===> 1 2+1

This will give us sentences such as

50) The mixture repelled from it insects.

51) John carried with him books.

The order of the reduplicated prepositional phrase and the theme must be reversed if the theme is small. Length, however, will permit it to stay post-verbal:

52) John carried with him the books which he had been entrusted with.

We have seen a number of transformations which occur prelexically. Below we list them in the order in which they must appear:

1. AT TO for Possessional and Motional verbs

2. Simplification of Secondary Expression of Goal: (NOT) TO ===> AT

3. Reversal of the Theme and (NOT)Prep

4. Reflexivization

5. Reduplication of (NOT)Prep for Positional Verbs

All of these transformations must be considered as applying before lexical items are added to the string. Passivization, for example, which occurs only to verbs that are left transitive after incorporation (or deletion) applies necessarily after the prelexical string has been become rewritten into phonological forms (and also after some deletions).

We thus have reason for wanting to determine reflexivization before the phonological matrices appears, not simply to have reflexivization ignore the matrices. The irrelevancy of the phonological matrices for reflexivization can be seen by the fact that the following sentence is deviant or humorous:

53) *Napoleon loved Bonaparte more than his mistresses.

This implies that Napoleon and Bonaparte are different people. We must say

54) Napoleon loved himself more than his mistresses.

In reduplicated forms the from that may appear as an image of the subject will not enter into a source-goal relationship with a to-phrase that happens to appear. This is due of course to the means by which it was generated. Even after its metathesis with the theme, it will not be dominated by the same P as a to-phrase that to be there. In

55) John hurled the book away from him to Alice.

only have we the intonation appropriate to labeling 'away from him' as a constituent separate from 'to Alice'. However in a sentence such as

56) John hurled the book away from himself to Alice.

we have the natural ambiguity, in which 'away' may be a constituent distinguished

from the constituent 'from himself to Alice', or we may have 'away from himself' as a constituent, and 'to Alice' as another. For another example, compare the sentences:

57) The mixture repelled insects from it to the trap.

58) John repelled the insect from the food to the trap.

In the first of these a source-goal pattern is not possible as it is in the second. Indeed the first sentence is equivalent to

59) The mixture repelled insects to the trap.

60) The mixture repelled insects to the trap from it.

The order has no significance for the reduplicated from.

7.4 The Prevention of Reduplication by Post-Verbal Incorporation

The reduplication is apparently not possible in some cases. For example, deliver is like bring, but does not reduplicate the subject:

1) John brought a book with him.

2) *John delivered a book with him.

However, note that bring does not incorporate the with-phrase if to is incorporated.

3) *John brought Bill a book with him.

4) John delivered the letter.

5) John brought the letter.

With deliver there is a clear sense that the letter is coming from some person and to another person. This is absent with bring, which merely has the implication of 'come'. This suggests that we have incorporation with deliver, which prevents the reduplication.

We have seen that reduplication puts the reduplicated phrase directly after the verb originally. This will prevent incorporation of the to in bring because of its interposition. In the case that we have obligatory incorporation of some member of the from-to pattern, if the reduplication rule applies, the generating string would automatically block when an attempt was made to map in the lexical entries. The entries simply would not fit.

Consequently deliver can be thought of as obligatorily incorporating some general to-from patterns, such as the word across or over represents. Note the expression 'come across with'. Also note that we have approximate paraphrases in

6) John brought the money over.

7) John delivered the money.

7.5 Get with an Abstract Theme

Get can be used as a Possessional verb with the subject from a prelexical prepositional phrase in to in the same sense as obtain.

1) John got a book yesterday from Bill.

However, the theme for get may be abstract as well as concrete. Instead of having some information word, however, as for tell and say, etc., we may have a noun clause indicating some action. In other words we shall analyse the sentence:

2) John got Bill to do the dishes.

in such a way that get maintains the same lexical entry for the abstract theme as for the concrete:

L-1)

		V, Motional
/get/ in env	TO	Possessional

If get used in this way is in fact a Possessional transition, then we can make a savings in the lexicon by uniting in one statement the uses of get for the two possible types of theme--specifying an action or a physical entity. We must satisfy ourselves semantically and syntactically that get used in this sense does in fact have a subject derived from a prelexical prepositional phrase in to.

Note that the following two sentences are grammatical:

3) John got himself to clean the room.

4) John got to clean the room.

A general rule for reflexivization that works most of the time is that a noun in construction with and having the same referent as the subject becomes reflexivized. For deletion of the subject of the embedded clause a general rule is that it occurs if a noun with the same referent occurs earlier as a principle noun in the main clause, i.e. as subject object, or indirect object, for informal examples.[9] Consequently we would expect that in sentence 3) the himself is some constituent of the main clause, whereas in sentence 4) we should expect that this constituent is absent, permitting the deletion of the subject of the embedded clause due to its correspondence of referent with the subject of the main clause. The embedded clause appears to be the obligatory part of this construction, and we would therefore like to say it is the theme, as apparently the other element is optional. That is, the constituent to which himself belongs is optional. If get used in this way does parallel the use of get to mean obtain then we should have an optional prepositional phrase with from. It is thus possible that in the prelexical structure we have in sentence 3) what would correspond to from himself.

We would have to say in this circumstance that this from is deleted before the action noun at some early point in the grammar. It cannot be formalized as incorporation because the incorporation would be obligatory when it occurs, yet the element itself is optional. However, if it were incorporation then the lexicon would be complicated by the fact that get in the sense of obtain does not incorporate, and hence the simplification would be greatly reduced. However,

that we do have such a rule can be seen in similar instances. For example we have

5) John wants a book from Bill.

but not

6) *John wants Bill a book.

and hence we do not have incorporation of from for want. We will show that the of that appears in

7) John wants it of Bill that he clean the house.

is very likely a reduced form of from. Thus note the from and of in the following sentences:

8) What John wants from Bill is for him to clean the house.

9) What John wants of Bill is for him to clean the house.

However, we cannot say

10) *John wants of Bill to clean the house.

Instead we must delete the of before the action clause.

11) John wants Bill to clean the house.

Similarly, with ask we may have either an information clause and an action clause. In the former case we may have of, again a form of from,

12) John asked of Bill if he would be allowed to go.

But the of must be deleted before action clauses:

13) *John asked of Bill to go.

14) John asked Bill to go.

In these sentences the subject of the embedded clause is intended to be the same as the subject of the main clause, ^{Z}John.

One unfortunate point is the difficulty in manifesting the from of get in a sentence parallel to 8). Consider the possibility of

15) What John got from Bill was that he cleaned the house.

If no form such as this is allowable we might say that the restriction is on the particular form of the action clause. Note that we certainly can say

16) What John got from Bill was his cleaning the house.

It is significant to note that this form of the action clause is not possible in the straightforward form:

17) *John got Bill's cleaning the house.

18) *John got from Bill his cleaning the house.

Having demonstrated the syntactic feasibility of this analysis of get, we may consider it semantically. Note that the sentences 2) and 4) are considerably different in meaning, though they both have the subject of the embedded clause identical to the subject of the main clause. The difference in interpretation seems to be that in the first of these John's accomplishment is over himself, the action being perhaps against his will. In the second of these, however, John's accomplishment seems to come ultimately from someone other than himself or from no one at all, it being a grant or a piece of luck. The idea of 'getting something out of himself' is clear in 3) but not at all present in 4). This semantic distinction seems to be acceptably attributable to having a prepositional phrase with from in one case and no such prepositional phrase in the other.

Sentence 2) seems to be ambiguous according to these two senses. That is, it may mean that John got Bill to do the dishes by some sort of chance. There is no information regarding Bill's willingness or the presence of communication between Bill and John. In this sense we have also

19) John got the tree to fall down.

However, in the other sense sentence 2) implies that John acquired something which was Bill's to give, that Bill in fact lost something. This ambiguity is perhaps clearer in a sentence in which the embedded verb may or may not have an Agent subject. If we have a case with from deleted then the subject of the embedded sentence must be an Agent. Thus, we cannot say

20) *John got himself to inherit the money.

since we must have from deleted here and inherit must not have an Agent subject. However, we can say

21) John got to inherit the money.

since this requires no act of will. Thus in

22) John got Bill to inherit the money.

we do not have from deleted, whereas in

23) John got Bill to fetch the money.

we may have it deleted. Consequently, the ambiguity with a verb like float which may or may not have an agent subject is apparent:

24) John got Bill to float.

Here if Bill is being treated as an inanimate object we will not have from deleted, since the presence of from in the prelexical structure demands an Agent subject in the embedded clause. In the presence of from in the prelexical structure then, this sentence implies some sort of bending of Bill's will.

Hence sentence 2) has two origins. One in which there is not a from prepositional phrase and one in which there is the subject of the embedded clause

being identical to the object of the from and obligatorily deleted.

For the transition of possession of physical entities, if the subject is the recipient, that is, derived from a to-prepositional phrase, there are certain peculiarities. In the sentences

25) John bought the book for twenty dollars.

26) John got the book for twenty dollars.

27) John borrowed the book for twenty dollars.

we may have the interpretation that the twenty dollars went from John. The opposite is true for sentences whose subjects are derived from from prepositional phrases:

28) John sold the book for twenty dollars.

29) John gave Bill the book for twenty dollars.

30) John loaned Bill the book for twenty dollars.

We therefore may have evidence for the fact that get used with action clauses has a subject derived from a to prepositional phrase. We see that in the sentences

31) John got Bill to do the dishes for twenty dollars.

32) John got to do the dishes for twenty dollars.

as expected, if this is the case, John loses the twenty dollars. Note in fact that if Bill comes from a from prepositional phrase in 31) Bill should be the recipient of the twenty dollars. This is so on one reading of 31), although due to the ambiguity observed above that the money may go to some other unmentioned person, as it does in sentence 32). In

33) John got himself to do the dishes for twenty dollars.

we have the expected absurdity that John paid himself. Note, however, that in similar constructions it need not be construed that the subject loses the money. In

34) John caused the tree to fall down for twenty dollars.

this reading is not possible. The reading that John receives money follows from the fact that the subject is Agent here. Similarly, the attempt to give the reading that the tree gets the money follows from the attempt to interpret the subject of the embedded sentence as Agent. This is not possible since tree is inanimate. The fact that a subject as an Agent is interpreted as the recipient of the money gives possible additional readings for sentences 31) through 32).

7.6 The Identificational Parameter

The parameter of Identification occurs in both a nonMotional sense and a Motional sense, already seen with the verbs turn, change, transform, convert,

etc. (see 3.1). In the Nondescript sense the verb used is be just as be is also used for the Nondescript Positional. That is, in sentences of the type

1) The house turned into a shack over night.

the noun phrase of the object of into is in a class that also occurs after be as in

2) The house is a shack.

That this is so can be shown by the fact that in both cases it is impossible to have a quantifier in the noun phrase:

3) *The house turned into every shack.

4) *The house is every shack.

The object of into in other parameters, such as the Positional, may be quantified:

5) The ball rolled into every room.

In addition there is the same semantic properties in each case if the noun should be determined definitely. In the sentences

6) The house turned into the shack.

7) The house is the shack.

we have in both cases the necessity to interpret the determiner as being used to differentiate the referent from others like it, or in contrast with it. It cannot be used merely to signal an object previously referred to. For this, the words this and that are more suitable:

8) The house turned into that shack while the palace turned into this one.

9) My house is the shack, but yours is the palace.

For this reason it is not possible to pronominalize in the usual sense. We can say 'Look at the shack. The dog ran into it'. But we cannot say 'Look at the shack. The house turned into it'. Similarly we can say 'Look at the shack; the dog is in it.', but not 'Look at the shack; the house is it'.

Having demonstrated the similarity between these two instances of the Identificational we can conclude either of two things. Either turn into and like constructions actually have a complement with be underlying them, the be being deleted, or we actually have here a parallelism between Motional and nonMotional verbs of the same parameter, the Identificational. That be is not so special and that there is a prepositional phrase underlying the sentence 'The house is a shack' with shack as object would follow from this. In fact, this latter hypothesis may be simpler in that we would not have to assign any characteristics to be more special than those that already appear regularly in the language. All we would need do is mark be and turn as Identificational, the latter having the feature Motional, the former not. In addition we would not have to specify that turn has its speciality of obligatorily deleting be. We will give evidence

for this latter possibility.

First of all it should be noted that the verb turn can be used in two distinct senses within the parameter of class membership. Compare for example the sentences:

10) The coach turned into a train.

11) Bill turned cook.

In the first sentence we have a sense of permanent or complete change of identity, whereas in the second sentence we have a sense of impermanency or change of a characteristic that is not essential to the identity of the object changing, i.e. is essential to the identity of the theme. The constructions used to express the identificational transition are significant. They cannot be interchanged.

12) *Bill turned into a cook.

13) *The coach turned train.

With be these two may have a syntactic distinction as in:

14) The coach is now a train.

15) Bill is now cook.

At first glance this seems to be the optional deletion of a. However there is a semantic distinction between the sentence with and without a. It seems that the sentence without a is the same in meaning to

16) Bill is now the cook.

This determination, however, refers not to any definite 'cook', but rather to the only 'cook' of some specifically understood organization. It is not possible to say

17) *Bill is now cook that I saw yesterday.

In other words the the which may be deleted is one used to single out for contrast the profession of the individual as unique for some given circumstance. This is the same the which is permissible to use in front of be and turn noted above. Hence we need specify only the deletion of the definite determiner after be here. For turn both a and the may be deleted.

For the Motional verb turn it is not implied that Bill become a specific cook. Due to this semantic distinction we cannot say that the syntactic distinction for be precisely parallels that for turn. Evidence for be deleted after turn would consist in the same, not different, deletion possibilities.

The syntactic distinction for other Motional verbs is manifest in a slightly different form. Thus we have

18) John converted from a Protestant to a Catholic.

19) John converted into a dwarf.

Again into is used for the more permanent, complete transition. Here however we see to being used for the preposition indicating a more superficial change. Note again that these propositions are significant and the constructions cannot be interchanged:

20) *John converted to a dwarf.

21) *John converted into a Catholic.

If acceptable, these sentences require special interpretation. Similarly, a co color change, which is not a complete change of form, takes to:

22) Suddenly the light changed to red.

23) *Suddenly the light changed into red.

24) *Suddenly the light turned into red.

Change can be used in the sense of intrinsic transition, however, as in

25) Suddenly the coach changed into a pumpkin.

But we cannot say

26) *Suddenly the coach changed to a pumpkin.

The distinction then is between to and into. The to is either deleted or incorporated after turn. The article is therefore optionally deleted in front of the simple preposition; it is interesting to note that the deletion of the article either occurs to all noun phrases or not at all. We cannot have

27) *John turned from a doctor to cook.

28) *John turned from doctor to a cook.

The separateness of the deletion of the article and the deletion or incorporation of to is shown by the fact that we do not have to have the article deleted to have to absent:

29) John turned (a) doctor.

30) His complexion turned a funny shade of green.

As in the second of these above we note that the article cannot be deleted before certain kinds of nouns. It can be deleted before adjectives

31) John turned clever gardener in a few days.

But not before shade

32) *John turned funny shade of green.

Similar to shade are:

33) The milk turned a thick consistency.

34) Bill turned a too large weight.

It appears that the article will only be deleted before names of professions, religious titles, political affiliations, etc. We can say

35) Bill turned a lazy boy.

assuming he is a boy already and this is not a complete change. But we cannot say

36) *Bill turned lazy boy.

unless we interpret boy as some sort of superficial affiliation. Emphasis on lazy permits this sentence, however:

37) The tree turned flagpole in a few days.

there is the humorous feeling that the tree did it by some willful means, since the deletion of the article implies a profession. But

38) The tree turned a flagpole in a few days.

is natural, meaning someone fashioned it as a flagpole in a few days.

The deletion of the article is also possible for the other words:

39) John converted to Catholic.

40) Bill changed to cook.

Thus we see that an article is deletable before professional names after the simple preposition, in the Identificational transitions. We can almost state this for be as well, except for the semantic deviation.

We would now like to state that if there were an embedded be after into or to these rules would no longer make sense. In fact the very statement regarding the types of nouns that go with the simple preposition and those with the complex one would seem strange if the object of these prepositions were uniformly a clause with be. We would have to have the concurrence restrictions apply after the deletion of be, which would be an added condition or we would have to overlook the be in the statement of concurrence restrictions. It seems simpler to state these restrictions, however, in terms of the nouns and prepositions themselves, as is common.

In addition, if we do have the noun phrase directly following the preposition, then this will bring out more clearly a parallelism with be. The deletion of the article occurs for certain types of nouns optionally for both the active turn and the stative be. It would of course be possible to say that this is due to a deleted be before the noun phrase. However, the deletions are not quite the same, the stative verb only allowing the deletion of a definite article.

This study shows the feasibility, if not the desirability, to say that both be and turn are Motional-nonMotional counterparts of the same parameter, the Identificational. That in the one case we have underlying prepositions at and in before the noun phrase paralleling the to-into of turn. For be, the at and in of Identification must be obligatorily deleted or incorporated. Since, as we

shall see, stative prepositions of identification never appear after a verb, we should favor deletion rather than incorporation. Indeed, since be can have at and in for other parameters, such as the Positional, the statement in the lexicon for incorporation would be no simple matter. This is so because the obligatory incorporation of an optional element, it being either Positional or Identificational, cannot be stated and according to our formalism must be attributed to deletion. Hence for be we simply say that we have the lexical entry

L-1) /be/ in env | V, Nondescript Identificational Positional

We need specify no particular prepositions, as all will be possible, but all will be deleted. In case of a negative preposition, only the NOT will remain. Note that be may be either Positional or Identificational. Only the Identificational prepositions are deleted. We shall say that Identificational, nonMotional prepositions are in general always deleted.

It may be noted here that the distinction in the choice of prepositions is paralleled in Russian by the use of the instrumental after be to express the superficial affiliation. Assuming nouns in a particular case are the same as prepositional phrases on an underlying level, we can identify this case with our at.

This distinction in the use of these prepositions is consistent throughout all the words which express Identificational transitions. It is interesting to note that the two prepositions here are the same as those used for the Possessional transitions. We noted in 4.3 that the object of the simple preposition to is the possessor, as in 'John gave a book to Bill', whereas the object of the complex preposition into is the thing possessed, as in 'John came into a fortune'. Similarly, in the Identificational transitions, the object of to is a superficial identification, whereas the object of into is an intrinsic identification. It may be possible to relate these two distinctions by observing that the intrinsic property may be thought of as a property belonging to the theme. The superficial one is a property, such as an occupation, to which the theme clings.

The absence of to for the construction with turn may indicate incorporation of to. If we have incorporation of to for turn it seems to be obligatory. Thus we cannot say:

41) *John decided to turn to (a) redcoat.

but rather

42) John decided to turn (a) redcoat.

However, if we have a from-phrase interposed between the verb and the to, incorporation does not occur. Unless we have incorporation of a to-phrase would mean that if we had a from-phrase interposed, the string would block. Rather, however, we have an acceptable string:

43) John decided to turn from a loyal patriot to a redcoat.

We may say, however, that from NP is incorporated along with the to. Consequently we should have for the lexical entry:

L-2) /turn/ in env V, Motional Identificational (FROM NP TO)

This specifies that we have optional incorporation of the whole string or that it is obligatory in the environment after the verb. Consequently we must always have at least the object of the to-phrase expressed in the environment. As seen turn cannot stand alone without a prepositional complement, nor is a from-phrase alone sufficient. Thus we cannot say either

44) *John turned.

45) *John turned from a doctor.

However, when the from-phrase is not expressed we must assume that it is incorporated. Our formalism predicts and necessitates this.

But into is also possible in the environment and is not incorporated. Into is TO IN, so that when the TO is incorporated above, the string will block and we shouldn't be able to have into in the environment. However, the problem is more severe, because even if we specified that the to incorporated have a normal noun phrase as object and not IN NP, we would still have here a case of obligatory incorporation of an element which varies optionally with other elements in the environment. As noted in 2.1 this situation is impossible to formalize by our methods. It might be more favorable to consider this deletion of to then, instead of incorporation.

Note that another reason for assuming that it is deletion and not incorporation is the absence of to also in causative forms:

46) John turned Bill cook.

47) *John turned Bill to cook.

Here we have the same conditions. However, for incorporation it is essential that we have the incorporating and incorporated element juxtaposed. Above the theme seems to interpose between the verb and the would-be incorporated to, and we should have incorporation prevented. Since this is obligatory incorporation the whole string should block. Note that for words like pierce, which may be used as a causative, we do not have incorporation when the theme interposes in the causative:

48) *John pierced the paper the pencil.

Also, when we have to incorporated after send, we must have the to immediately after send; we cannot have, for example:

49) *John sends a book Bill.

Deletion, however, may occur at a distance from the conditioning element. We shall leave this question unresolved, since it depends considerably on the formalization used.

The presence of FROM NP incorporated is, however, evidenced by the meaning of turn. Compare turn with become which is similar in that it expresses an Identificational transition and incorporates to. However, there is no reason to assume that become incorporates a from-phrase which in fact cannot appear in its environment. Compare the sentences:

50) John turned a doctor.

51) John became a doctor.

Turn implies the existence of a significant previous occupation. Thus it is better to use become when there is no previous occupation. We say

52) When I grow up I intend to become a doctor.

but it is odd to say

53) *When I grow up I intend to turn a doctor.

For become, as seen, we need specify obligatory incorporation of TO or INTO so that we have for the lexical entry:

L-3) /become/ in env V, Motional Identificational TO(IN)

This means that become will appear only as a transitive verb. The impossibility of having a from-phrase with become follows naturally from the given order of the phrases, the from-phrase preceding the to-phrase. Consequently since a to-phrase must be incorporated immediately after the verb, the string will block for become if a from-phrase has been generated interposed between the two. We cannot have more than one from-to pattern for the transition of Identification, as noted in 5.1, and therefore we cannot have a from following the to which has been incorporated:

54) *John became a doctor from a cook.

For change note that we can say

55) John changed.

56) John changed to a clown.

57) John changed from what he used to be.

Hence change may be thought of as completely general and unmarked. Hence we have the entry:

L-4) /change/ in env V, Motional Identificational

7.7 Adjectives and the Identificational Parameter

Adjectives may appear after turn, as well as after be. Among those already studied which express identification, only turn can be used with adjectives immediately following the verb:

1) Alice turned intelligent since I saw her last.

2) The tree turned green.

3) Bill's cat turned wild.

4) The weather turned favorable for a picnic.

5) The milk turned sour from standing too long.

But not

6) *The milk changed sour from standing too long.

7) *The tree converted green.

8) *Alice transformed intelligent since I saw her last.

For these words it is possible to have a construction such as

9) The fruit changed from sweet to sour.

10) John transformed the shape from spherical to rectangular.

11) His attitude was converted from belligerent to fairly composed.

In addition, turn can be used in this form:

12) The temperature turned from cold to hot.

Unlike the Identificational transitions discussed in 7.6 it is not possible to have a to prepositional phrase stand alone apart from the source-goal pair.

13) *The fruit changed to sour.

14) The ice cream changed to a liquid.

The from phrase also cannot stand alone,

15) *The fruit changed from sweet.

The peculiarity of turn with respect to the other verbs of Identification in that the adjective can stand in front of the verb, is clearly a reflection of the incorporation or deletion of to. Sentence 12) shows that turn acts in the same way towards adjectives as toward nouns:

16) The weather turned from bad to worse.

17) Bill turned from a doctor to a cook.

18) The weather turned worse.

19) Bill turned a cook.

20) *The weather turned to worse.

21) *Bill turned to a cook.

This means that we may use the same prelexical structure for turn in this usage of adjectives as for the usage of nouns.

It is interesting also to note that only the simple preposition to and not the complex into, can be used before adjectives. This fortunately is the one which turn incorporates or deletes. Thus we cannot say

22) *John changed from happy into sad.

whereas it does seem permissible to say

23) John changed from happy to sad.

24) John changed from being happy into being sad.

This seems to imply further that we do not have deletion of be for these adjectival forms.

7.8 The Positional Parameter and the Progressive

A connection between the progressive and the ordinary Positional expressions on the one hand, and the expressions of identification and the adjectival attribution on the other, is brought out with the word become and the possibility of modifying a sentence to begin with the introductory there.

In front of become we cannot have either the Positional prepositions or the progressive:

1) *John became in the room.

2) *John became into the room.

3) *John became playing the piano.

However among the other possibilities that we can have after be, the expression of class membership and the adjective can appear:

4) John became happy.

5) John became a cook.

6) The coach became a pumpkin.

This is the same possibilities as for turn. On the other hand we have just the reverse possibilities for the introductory there. We have both of

7) There is a man in the room.

8) There is a man playing the piano.

but for the noun and adjective we cannot have this construction:

9) *There is a man happy.

10) *There is a man a pumpkin.

Evidently the progressive and the Positional have in common the property that the subject is referential, perhaps referring to some perceivable entity. This is not possible for the adjective and the identificational noun. The sentences

11) A man is in the room.

12) A man is playing the piano.

may be a report of the observation of some event, whereas

13) A man is wise.

14) A man is an animal.

must be interpreted in the generic sense. In order to be referential here we must use a definite article or pronoun.

15) That man is wise.

16) He is a cook.

Because we cannot interpret

17) *A man is a cook.

in either the generic or the referential sense, it seems deviant. Similarly for the adjectives

18) *A man is witty.

The property of referentiality for Positional prepositional phrases may be related to the concreteness of the Positional parameter, that it is associated with concrete reality. This may also be so for the progressive in which a particular action is referred to. The expression of identification and the adjective do not refer to any particular circumstance.

The connection between these pairs must be due to the features marked on the verb. Somehow adjectival modification must be a kind of expression of identification, whereas the progressive must be a kind of Positional. These observations would suggest that adjectives after turn, change, transform, etc. should not be treated as deletions of be if the expression of identification is not. Similarly the progressive could be considered similar to the ordinary use of be with prepositional phrases of position. That is, the progressive may be thought of as a noun clause acting as either the theme or in a prepositional phrase. Historically the progressive did appear as a noun clause in construction with on.

That the progressive should be considered a normal use of be follows from some observations regarding the adverbs of time it takes. Thus still can be used with all forms of be and all stative verbs, including other verbs in the generic or definitional sense:

19) John still had the book.

20) John is still a doctor.

21) John was still a doctor.

22) John is still dancing.

23) John still looks young.

24) John still writes with his left hand.

25) John still killed chickens when I saw him last.

but not when there is no possibility of a generic interpretation as in:

26) *John still killed a chicken while I watched him.

27) *John still looked into the room.

28) *John still acquired the book.

Similarly the progressive can be used in instances where a verb such as be is required in the normal uses. For example after think we must have be or any other stative-like construction, such as the perfect tense:

29) John thought Bill to be in the room.

30) John thought Bill to be a doctor.

31) John thought Bill to have gone into the room.

32) *John thought Bill to go into the room.

33) John thought the book to belong to Bill.

34) John thought Bill to be playing the piano.

With the observation that the progressive behaves not as a tense of a verb but as a normal use of be it is more apparent that we should consider it as a Positional use of be. Parallel to the prepositional phrase following be in the Positional, we should have the same for the progressive. That is, the progressive is simply to be followed by a stative preposition (in, on, at) in construction with a noun clause expressing circumstance.

That it is in fact the case that Positional verbs may often be used with noun clauses instead of physical entities are objects of the preposition. For example, we have:

35) John wandered from playing to doing his homework.

36) The weather went from being insufferably hot to amazingly cool.

37) John withdrew from smoking.

38) John fled from doing the dishes.

39) John escaped doing the dishes.

Interestingly escape incorporates from before both names of things and clauses as above:

40) John escaped the trap.

Thus we may associate the Identificational with the adjective in one parameter and subsume the progressive in the Positional parameter. All the forms of be really have prepositional phrases in their prelexical structures following a simple Nondescript verb.

7.9 Analysis of Remain

Besides be and verbs of 'motion' such as turn certain other verbs can be used for the Identificational parameter.

1) The house remained a shack.

2) Bill remained a cook.

3) Nevertheless, man remains an animal.

It is apparent that these are similar to the forms after be and turn in that they too do not take quantifiers:

4) *The house remained every shack.

We have noted in the Positional sense that the distinction between this verb and be is that between the feature Durational and Nondescript, turn is Motional.

Note here that remain, and stay, delete the article as in all the other cases of the Identificational, when we have some profession.

5) Bill remained cook.

6) John stayed doctor.

We note that this is more like after turn than after be because the deletion does not necessarily imply that there is only one such person. Hence both the definite and indefinite article can be deleted here. The deletion does not occur for these identifications which refer to something permanent or characteristic:

7) *The house remained shack.

This is as expected.

However there appears here a form which is new. Consider the sentences:

8) Bill remained as a doctor.

9) John stayed as physician.

This as does not occur with motion forms:

10) *Bill changed as a doctor.

11) *Bill changed to as a doctor.

12) *Bill turned as a doctor.

One possibility that comes to mind is that this as is the one used for sentence comparisons, meaning 'in the same way as', as in

13) John hopped around the room as a clown would.

which may reduce to

14) John hopped around the room as a clown.

However it certainly isn't correct to say that sentence 5) means

15) Bill remained as a doctor would.

Another possibility is that it comes from a construction such as 'as if one were', for example, in

16) John started giving orders as if he were a god.

But this itself does not seem reducible to

17) John started giving orders as a god.

which implies either that John is a god or means 'as a god would'.

We note that very often we have paraphrases such as:

18) Being president, I can assume these powers.

19) As president, I can assume these powers.

This may come from the use of as meaning because, as in 'As I am president ...'. However, this doesn't work for our case either. We do not have the sentence

20) *Bill remained as he was a doctor.

However we may have on a level deeper than the surface, deleting as,

21) Bill remained (as) being a doctor.

This is semantically feasible, but this only begs the question because now we must discover what this as is. Like sentence 8) it does imply that John was a doctor. But it cannot be an adverbial adjunct for the reasons given above. Indeed it seems that these as phrases in sentences 8) and 2) are obligatory elements of the sentence, which might indicate that they are major sentence parts. Sentence 21) in fact can be reduced to sentence 8) by assuming it comes from

22) Bill remained as one who is a doctor.

which is the same form.

Sentence 8) implies that Bill is indeed a doctor and differs from the unacceptable sentence

23) Bill is as a doctor.

Such a sentence if grammatical might be the same as 'Bill is as a doctor is' and

does not necessarily imply that Bill is a doctor. It is interesting to note, further, that in such sentences as

24) Bill was elected as a senator.

25) Bill stood at the head of the aisle as an usher.

26) Bill spent his whole life as a social worker.

we have the meaning that Bill actually does have the occupations ascribed to him. Sentences 25) and 26) may be syntactically ambiguous, in that they may imply that Bill only had the appearance of the occupations ascribed to him, coming from, for example, 'Bill stood at the head of the aisle as an usher would'. But if this were the only source we could not get the reading that Bill is an usher. Thus we can have the two types of as together:

27) Bill spent his whole life as a social worker as many altruistic people (do).

Rather the as that we are after has the meaning 'in the capacity of', or 'in the occupation of'. In other words there is no change in meaning between

28) John remained as a social worker.

29) John remained a social worker.

It seems that we could take the hint from the paraphrase above and from this identity to say that this as is a manifestation of a single preposition, namely the at which is obligatorily incorporated in be and which is the nonMotional counterpart of to for the Identificational parameter. Since it is obligatorily deleted after be we know why the as that appears after be must be due to a kind of conjunction, which implies similarity but not identity.

This preposition may then appear optionally in front of remain and stay as as, but is obligatorily deleted after be, so that we cannot have the meaning that 'Bill was a doctor' in 'Bill was as a doctor'. Apparently this may appear elsewhere than after be and remain as in sentences 24) through 26).

Having decided on the nature of this as we must now discover whether or not remain takes as just as be does, or whether it deletes be. It is of course possible to derive such sentences as 28) from a sentence such as

30) John remained being (as) a social worker.

We may say that the as in question is not deleted until after the rule for being deletion has applied, so that it may appear elsewhere with the appropriate meaning. It is probably the case that sentences such as 27) are derived from

31) Bill spent his whole life being a social worker.

In fact it is favorable to do it this way since we prefer not to have to label the preposition itself as being identificational, independent of the main verb. However, if it derives from be, the main verb there, be, used in the Identificational sense predicts the form. In addition we get the following forms from the deletion of being:

32) Bill spent his whole day happy.

33) Bill spent his whole day a cook.

34) Bill spent his whole day in that room.

35) Bill spent his whole day pinned to the wall.

The passive itself is not permitted, however.

36) *Bill spent his whole day pushed down the mountain by John.

although we can say

37) Bill spent his whole day being pushed down the mountain by John.

Certain passive forms may be used as adjectives as in 35).

We have the same range of possibilities after remain, and since remain does take stative verbs, the parallelism with be breaks down somewhat. Thus we can have

38) Bill remained happy.

39) Bill remained a cook.

40) Bill remained in that room.

41) Bill remained pinned to the wall.

42) *Bill remained pushed down the mountain by John.

The restriction on the deletion of be from true passives with the by phrase suggests that we have a regularity more favorable to rule than incorporation. Consequently we can say that remain has the possibility of taking Positional prepositional phrases, including the possibility that the object is a clause. Then we have a fairly simple system. Remain is merely marked as being Positional.

Consequently for the lexical entry for remain, all we need have is:

L-1) /remain/ in env | V, Motional; Positional

8. AGENTIVE VERBS

8.1 Manifestation of Agentive Verbs

We have noted several times that the relationships among words were often complicated by the fact that certain subjects had the peculiarity that they were also what we termed Agents. In this chapter we shall investigate their occurrences and the relevant formalizations.[10]

The difference in meaning between such pairs as

1) John sold flowers to Bill.

2) Bill bought flowers from John.

is that in the first of these John wills the action and intentionally effects it whereas Bill is relatively passive. On the other hand, in sentence 2) the active agent is Bill, while John is relatively passive. In fact if we look at the passive form of the first sentence and compare it to the second we can perceive the difference in meaning:

3) Bill was sold the flowers by John.

4) Bill bought flowers from John.

The passive, we would hold, does not change meaning. Consequently comparing these two for meaning is about the same as comparing the two active sentences. It seems to be apparent that the difference lies in the interpretation of who was the intender of the action. A noun that has this property will be said to have the feature Agentive. Note that we can say, for example,

5) John bought the flowers from Bill intentionally.

where the adverb refers to John, but in

6) John was sold the flowers by Bill intentionally.

clearly the adverb refers to Bill. Certain verbs, such as receive, as distinct from buy, are necessarily not Agentive and we therefore cannot say:

7) *John received the book from Bill intentionally.

We have seen many verbs that optionally or obligatorily have subjects which are interpretable as an Agent. The subject may be the theme, or come from prepositional phrases with to, from, with, etc., or it may be an Agent only.

Verbs whose subjects are Agents only are generally called Causatives, for example:

8) John turned the ball into a grapefruit.

9) John rolled the ball down the hill.

10) John transferred the ball from Bill to Mary.

in which ball is the theme and John the Agent. With abstract themes we may have

11) John reported to Mary from Bill that the war would end soon.

And with abstract source and goal phrases we may have

12) John turned Bill away from doing his homework.

13) John forced Bill to do his homework.

and many others. In the above Bill is theme while 'to do his homework' is clearly the noun clause object of some Motional preposition since we have

14) What John forced Bill into was to do his homework.

We have already seen many cases where the theme is optionally interpretable as an Agent. In fact if the subject is Animate this interpretation is generally possible.

15) John went into the room.

16) John rolled down the hill.

17) John floated across the lake.

If the subject is nonAnimate the interpretation of Agent cannot be given:

18) The log floated across the lake.

There are very few verbs which are Motional or Durational and which cannot be interpreted as being Agentive when the subject is Animate. For Nondescript verbs it is the other way around. They are usually necessarily nonAgentive.

19) The child belongs to its mother.

implies an Agent. Among the Durational, however, it is also possible to say

21) John remained in the room.

and mean that he intended to stay. In addition to there being an option, however, there is not such a large number of verbs whose subjects are themes and also obligatorily Agents. It seems that in the sentences

22) John ran into the fire.

23) John fled out of the kitchen.

we may have Agents obligatorily.

In addition we have seen many cases in which a to prelexical prepositional phrase is in the subject which is obligatorily interpreted as an Agent. Among some in which the interpretation is optional, we have

24) John got a book.

for which we need not have an animate subject:

25) The house got a new roof.

However in

26) John fetched the book.

the subject is obligatorily an Agent and therefore may not have an inanimate subject:

27) *The plant fetched a new leaf.

Similarly as we may have an Agent for the subject which comes from from prepositional phrase. There are many verbs for which this interpretation is obligatory. Among these in which it is optional is lose.

28) John lost the game intentionally.

29) The house lost its roof.

Among those verbs which incorporate nonMotional prepositions in the subject, we have have and hold.

Nondescript and generally nonAgentive are the first, while the second is Durational which may therefore be Agentive. Thus

30) *John had the book intentionally.

31) John held the book intentionally.

8.2 Syntactic and Semantic Properties of Agentive Verbs

The Agentive is distinguished by having various peculiar semantic and syntactic properties.

If the subject may have the interpretation of being an Agent, then it may be used with be to form the progressive. Thus for example we can say:

1) John is forcing Bill to swim.

2) John is reporting to Bill about the war.

3) John is rolling the ball down the hill.

4) John is turning the coach into a pumpkin.

5) John is selling Bill a book.

6) John is getting his lambchops now.

7) John is keeping the book.

8) John is remaining in the room.

These are all either Durational or Motional verbs. It is possible to use be with certain adjectives in an Agentive sense, meaning 'acting', in which case the progressive is possible:

9) John is being witty.

10) John is being obnoxious.

But not

11) *John is being tall.

12) *John is being intelligent.

In such a sentence as

13) John is having steak tonight.

the subject may be an Agent. However, it seems that we can say

14) The roof is having a new coat of paint.

which means that for have to be used in the progressive does not imply it is Agentive. Rather it would be better to say that the Nondescript verb is generally not interpretable as being Agentive. The above use of have, but not of be which must it appears be Agentive here, can be ambiguous with a Motional verb such as get. The Motional verb then may have the option of being interpreted as Agentive.

It might be that be can be used like get sometimes, which is obligatorily Agentive. Then we could maintain our generalization that Nondescript verbs do not have this optional interpretability.

While it appears to be true that if the verb has an Agent subject it can be used in the progressive but, as an active verb, the converse does not hold. There are Motional verbs which are not Agentive. For example we can say

15) John is inheriting his father's money.

16) John is losing his hair.

But these sentences cannot be interpreted as Agentive. The parlances 'Agentive', 'active', and 'Motional' verbs must be kept distinct. The general interpretability of Motional verbs as Agentive is true, but there are exceptions. The notion of Agentive verb and the notion of active verb are different things. The latter does not itself require an Animate subject. Nor does it attribute will to the subject. However, it remains that the Agentive verb is always of the type which can be put into the progressive, and hence active. This is even true for causatives in which the subject is an Agent but in which seems to be the causative of a stative verb.

17) At this moment the manager is putting us in room 209.

18) *At this moment the manager puts us in room 209.

19) *At this moment we are being in room 209.

It is true that all Motional verbs are active in that they take the progressive. But again the converse is not true. For example we have the nonMotional stand used actively in:

20) At this moment the pole is standing in the corner.

Similarly we have sit, lie, lean, all of which can be construed as nonMotional verbs, yet they take progressive. In addition, like Motional verbs, they are interpretable as Agentive if they have an Animate subject.

21) John is standing in the corner intentionally.

It is interesting to note that the simple Durational verbs remain and stay may

be interpreted as Agentive in which case they take the progressive.

22) John is remaining in the car.

But they are not active for inanimate nouns in which the interpretation of Agentive is not possible:

23) *The book is remaining in the car.

The interpretation of the subject as an Agent has syntactic effects. This means that the determination of the subject as Agent must precede the decision regarding the grammaticality of an embedded sentence in be to form the progressive. If the grammaticality of the progressive is determined within the semantic component by interpretive rules then the determination of the subject as Agent may be either by interpretive rules in the semantic component or may be already marked in the prelexical structure.

Another effect of the Agentive is the possibility of having purposive constructions such as so that, in order that, etc. With all Agentive verbs this is possible:

24) John remained in the room in order to see who would arrive.

25) John forced the tree down in order to obtain wood.

26) John rolled down the hill in a barrel in order to thrill the people.

But when the Agent is not possible, neither is the purposive construction.

27) This tree has deep roots so as to get subsurface water.

28) *The ball is rolling down the hill in order to reach the bottom.

29) *John inderited the money in order to get rich.

30) *John lost the money in order to look poor.

31) *John owns the book in order to look intellectual.

32) *John knows the answer in order to surprise everyone.

33) *John remains in the room in order to see who arrives.

In the last sentence above we have remain being used statively, treating John as an inanimate object. Hence it cannot be Agentive, and hence we cannot have the purposive phrase.

A semantic phenomenon associated with the Agentive verb is the interpretation of a because clause in construction with it. If it occurs with an Agentive verb then it is interpreted as the person's own reason for doing the action indicated.

34) John forced the tree down because he doesn't like shade.

But if we do not have Agent the interpretation must be the reason for the whole event's existence.

35) John remains in the room because no one pulled him out.

Compare the nonAgentive sentence above with

36) John is remaining in the room because someone asked him to stay, which pleased him.

Of course even a sentence which must be Agentive may have the because clause which refers to the reason for the whole event:

37) John forced the tree down because there was no one else to do it.

A verb with an Agent subject cannot be permitted in the ing complement of accept, protest, resent, ignore, suffer, require. We can say:

38) John accepted knowing the answer.

39) John protested losing the book.

40) John resented inheriting so little.

41) John ignored being told the answer.

but not

42) *John accepted teaching Bill the answer.

43) *John protested giving Bill the book.

44) *John resented fetching so little money.

45) *John ignored telling Bill the answer.

For these that can be interpreted other than Agent this is permissible.

46) John accepted remaining in the room alone.

47) John protested getting the book.

48) John resented floating across the lake.

In the above we must interpret the sentences as not having an Agent subject.
An instrument phrase can only occur if the subject is an Agent.

49) John sent the letter to Bill with a pigeon.

50) John gave Bill the book with his hands.

51) John learned with a tape recorder.

52) Bill was turned to a cook with a little persuasion.

But without an Agent subject this is not readily possible

53) *John lost the book to Bill with bad luck.

54) *The board floated on the surface of the water with an inflated tube.

But we do have

55) John floated on the surface of the water with a rubber tube.

It appears that by and by means of also have the same distribution and can be treated as abstract instrument phrases, their objects may be noun clauses or abstract nouns.

56) John taught Bill by being persistent.

57) Bill turned John into a pumpkin by magic.

It seems that by may be used without Agent subjects, indicating the physical reason for the event, however.

58) John lost his money by associating with vagrants.

59) The log floated on the water by means of its buoyancy.

Here we have the same semantic distinction as with because.

Often, in the absence of an Agent Subject the instrument phrase may be used in the subject:

60) When it was fired, the gun killed many animals.

61) John killed many animals with the gun.

62) If used properly, these barges will float a few tons.

63) John floated several tons with these barges.

64) Simple persuasion sold the book.

65) A lie forced John to confess.

66) Knowing the right people will get you what you want.

The instrument phrases cannot ordinarily be used without the subject being Agent, even if the verb looks the same in both Agent and nonAgent uses:

67) *The window broke with a hammer.

68) John broke the window with a hammer.

69) A hammer broke the window.

Thus we see that there are a number of syntactic and semantic reflexes of the feature Agent being in the subject. These facts will be relevant to our formalizations in Chapter 9.

8.3 Manifestation of the Permissive Agentive

In addition to the ordinary Agentive verb which implies that the subject causes the action, we have another, much less common type. The subject is still conceived of as being the willing Agent of the act, but rather than being the cause, he permits the act. This Agent can stand alone as the subject as in

1) John released the bird from the cage.

2) John let the bird fly into the trees.

which we might compare to an ordinary form such as:

3) John threw the ball into the trees.

We may have a to phrase in the subject, such as in

4) John accepted the gift.

which should be compared with the ordinary Agentive verbs

5) John obtained the gift.

Similarly, parallel to give, we have the permissive Agent:

6) John granted Bill a trip home.

7) John gave Bill a trip home.

Compare also

8) John admitted Bill into his room.

9) John entered the sparrow into the cage.

For both admit and enter we must have into in the environment. The difference between them is mainly attributable to the type of Agent. Also compare:

10) John dropped the ball to the ground.

11) John lowered the ball to the ground.

The permissive Agentive has the same semantic and syntactic peculiarities as the causative Agentive described in 8.2. The progressive is always possible, even in cases where the rest of the sentence does not describe a kind of motion:

12) John is leaving his toys in the room.

meaning 'let stay'. However, the nonAgentive form

13) *At this moment the toys are staying in the room.

is not possible, as noted. The purposive clause is possible:

14) John released the bird in order to see its manner of flight.

15) John granted Bill the book just to see if he would accept it.

Similarly because and instrument phrases may occur with the interpretation expected for Agentive forms:

16) John accepted the gift because he wanted to have it.

17) The canary admitted the sparrow into its cage by not acting frightened.

18) John dropped the lead to the ground with a release mechanism.

That the permissive aspect of these sentences should be classified with the Agentive is evidenced by the fact that it maintains the same semantic properties as the ordinary Agentive in necessitating an Animate willful subject, and maintains the same peculiarities regarding the interpretation and the possibility of various phrases in its sentence. It cannot be that the permissive Agentive is actually a normal Agent acting upon some situation in which permission is implied, because it is apparent that there exist no verbs which can have such a meaning. There is no difference in meaning, for example, between the following two nonAgentive sentences which can be attributed to this:

19) The ball fell to the ground.

20) The ball dropped to the ground.

Though these are related to forms that differ as to whether they are permissive or causative Agentives, they do not seem to be so differentiable as nonAgentives. Consequently we say that we have two types of Agentives.

Note that these do not seem to be verbs which are optionally nonAgent or permissive Agent.

Thus for comparison we have the following possibilities:

Table I

	Permissive	Causative	NonAgent
Possession	accept grant	receive give	acquire, inherit lose
Position	release, let free admit drop	send force enter fall	travel go enter fall, drop

Release and free both require Agent subjects, and optionally incorporate a whole prepositional phrase. Release seems to necessitate OUT OF in the environment: this is obligatorily formal as from however, as is common. We can say

21) John released the bird from the cage.

22) *John released the bird from the pole.

which doesn't have an inside. In

23) John released the bird.

24) John released the bird into the open air.

In all of these cases this prepositional phrase is implied. It is interesting to note that when we have a Human noun here, as in

25) John released Bill from the angry policeman.

the implication clearly is that the policeman had been holding Bill. Release and free do not permit away, nor any other to-phrase:

26) *John released the bird to the river bank.

27) *John released the bird away from the cage.

These verbs demand into, and out of, in their environment. We need specify only out of however, since the rule for consistency in from-to pairs will follow.

Let can be used as a fairly general permissive Agent of Motion.

28) John let Bill into the room.

29) John let the bird out of the cage.

30) John let the dog at the man. (at = toward)

31) Alice let her hair down.

32) Now let the pole to the ground slowly.

Thus we have the prelexical structure for release, and let, in the Positional parameter.

L-1) /release/ in env P-Agent V, Motional Positional (FROM IN NP)

L-2) /let/ in env P-Agent V, Motional Positional

For verbs such as grant, accept, we should have

L-3) /grant/ in env P-Agent FROM V, Motional Possessional (TO)

/accept/ in env P-Agent TO V, Motional Possessional

Here C-Agent means causative Agentive and P-Agent means permissive Agentive. We will adopt the convention of writing the marker for the Agent to the left of the preposition if we have a subject derived from a prepositional phrase or in

preposition incorporated in the subject if the subject is purely Agent. Compare this notation to that for give in which we have C-Agent. (See 3.2.)

L-5) /give/ in env C-Agent FROM V, Motion Possession (TO (N, Organization))

8.4 The Subject as Causative Agent Only

There are, however, a number of Agentive verbs which take noun clauses as objects of their prepositions. For example

Table 4

cause
make
coerce
conduce
induce
force

All of these fall into the following sort of pattern.

1) John forced Bill to do it.

2) John made himself do it.

3) *John caused do it.

The subjects of all of these verbs are only Agents and there seems to be no reason to attribute any other property to them, except various idiosyncratic properties of the verb. The fact that reflexivization occurs would indicate, as in 7.5, that we have a Human noun in the main clause. In fact, it appears that this noun is obligatory, since we cannot have it absent as in sentence 3). This sentence would have been grammatical if we had only the subject of the sentence, thereby necessitating deletion.

Apparently, however, this noun doesn't have to be a Human noun, since we have for some of the above:

4) John caused the rain to fall.

5) John forced the roof to cave in.

6) John made the wheel turn.

But not for the other verbs:

7) *John coerced the rain to fall.

8) *John induced the roof to cave in.

9) *John conduced the wheel to turn.

The obligatory noun before the clause, however, suggests that it is the theme. In the case of force the nature of the noun clause is suggested by the

sentences

10) What John forced Bill into was for him to do it.

11) John forced Bill into it.

However, this is not possible for nonAnimate nouns:

12) *John forced the roof into it.

Although we can say

13) John forced the roof off of the top of the house.

In fact force is like let in being a general Agentive verb for all kinds of motion.

14) John forced the ball into the hole.

15) John forced the paper onto the wall.

16) John forced the dirt under the rug.

It would seem favorable to be able to say that in the cases in which we have an embedded sentence, we really have a noun clause as the object of one of these prepositions, e.g., into. In fact, these prepositions do appear before a clause, indicating that there is some deletion of the preposition before or in the formation of an infinitive complement.

17) John forced Bill from doing the dishes.

18) John forced Bill into doing the dishes.

The first of these with from is questionable. The latter may be put into the form

19) John forced Bill to do the dishes.

Note that this must be the deletion of into and not the incorporation of it; obligatory incorporation only for one preposition before a particular form of clause would be a complicated thing to specify in the lexicon. Prepositions are generally deleted before infinitival complements.

There are, however, some additional complications. We noted above that some of these verbs do not permit nonAnimate objects. There are other properties that differentiate these words. For example for some in the class that permits nonAnimate objects we can have what appears to be no object at all:

20) John caused there to be rain.

21) John made there appear a fantasic image on the screen.

However, force does not permit this:

22) *John forced there to be rain.

In addition some of these can take ordinary concrete and abstract nouns:

23) John caused the rain.

24) John made the toy.

25) John made the rain.

But this is not possible for any of the others.

26) *John forced the rain.

27) *John coerced that event.

28) *John induced these events.

29) *John conduced the snow.

Another property that we may investigate similarly is whether or not the embedding of a passive sentence means the same as the embedding of an active sentence. For example, we have

30) John caused Bill to buy the groceries.

31) John caused the groceries to be bought by Bill.

Both members of this pair seem to mean the same. However in

32) John forced Bill to buy groceries.

33) *John forced the groceries to be bought by Bill.

we do not have the same meanings. In addition, for force another peculiarity is brought out, that the embedded verb must be active:

34) John forced the ball to roll into the hole.

35) *John forced the ball to be a red color.

36) *John forced the ball to weigh five pounds.

But with the verbs that take Animate objects we have a clear difference of meaning

37) John coerced Bill to visit Mary.

38) John coerced Mary to be visited by Bill.

39) John induced Bill to visit Mary.

40) John induced Mary to be visited by Bill.

And similarly for conduce. Force and cause also have this difference with Animate nouns, in which the object of the verb is acted upon apart from action

indicated in the embedded clause.

41) John forced Bill to visit Mary.

42) John forced Mary to be visited by Bill.

Apparently, for Animate subjects, the embedded sentence does not have to be a Motional verbs. This is probably due to the fact that having an Animate subject the embedded verb may be interpreted, as it seems to be, as having an Agent subject. This automatically implies an active verb. (See 8.2.)

Noted above, the possibility for some of these verbs to take inanimate nouns and the possibility to embed a sentence introduced by there cooccur, as in make and cause. Both of these observations give evidence to assuming that the clause that does appear may at times itself be the theme. The inanimate noun should be thought of as originating in the clause. And certainly there could not be conceived as originating as a noun in the main clause. Consequently it would appear that cause and make at least some of the time may have the whole clause as theme. However this would allow at such times the deletion of the subject of the embedded clause when it agrees with the subject. However as seen by 3) this is not possible.

Instead of making a restriction on the deletability of the embedded subject, it is possible to prohibit the deletion by assuming an underlying structure which would naturally prevent it. This could be done if we assumed that the clause in question is not the theme at all. Nor can the noun be that appears immediately after cause and make, since this would not permit there.

For cause and make we might assume that the theme is some generalized nominal meaning 'the situation' or 'the universe', which is obligatorily incorporated. The noun clause would then be exactly of the same function as that after force, namely the object of some preposition like into.

Consequently for cause we would have the lexical entry

L-1)

		V, Motional	N, Abstract	
/cause/ in env	C-Agent			INTO

For force we have the possibility of having other themes, none of which are incorporated. In fact we can also have ordinary objects after many different prepositions of motion, as well as a noun clause. Thus we need write only

L-2)

		V, Motional	
/force/ in env	C-Agent	Positional	

This formalization will not exclude 17). We do not formalize its necessity to have active verbs in its embedded clause. Coerce, induce, conduce obligatorily have an Animte theme. Consequently, the prelexical structure:

L-3)

		V, Motion		
/coerce/ in env	C-Agent	Circumstance	N, Human	INTO

Note that for coerce and the others, the preposition is positive only, and must have a noun clause as object. We cannot say:

43) *John coerced Bill from playing the game.

44) *John coerced Bill into the room.

45) *John coerced Bill from his book.

Having the clause we noted in 7.8 is probably best considered a subfeature of the Positional, namely circumstance. It can almost be said that force can be used for both, hence being Positional.

Drive is even a more general causative Agentive than force. For drive we can have very certainly a noun clause as the object of from:

46) John drove Bill from dancing so much.

Similarly, for the positive we have either of the following:

47) John drove Bill into dancing too much.

48) John drove Bill to dance too much.

We can also have the full range of Motional prepositions:

49) The man drove Bill out of his house, by being an obnoxious neighbor.

50) The man drove Bill into the corner, by frightening him.

Note also, just as we can say 'go insane' we can say:

51) John drove Bill insane.

It may be that insane is quite literally 'out of one's mind' in the prelexical structure, as this would account for its use with Motional verbs.

8.5 The Subject as Permissive Agent Only

The permissive Agentive has been shown in 8.3 to parrallel the causative Agentive in several instances in which it is associated with a subject derived from some prepositional phrase. It is also possible to have the permissive Agent alone in the subject, as was seen with release and let for the Positional aspect. Just so we can have noun clauses as objects of the prepositions.

1) John let the cat walk on the table.

2) John permitted Alice to go for a walk.

3) John allowed Mary to read his book.

These words act similar to the C-Agentive in 8.4. They permit the embedded sentence to begin with there, yet do not permit the subject of the embedded clause to be deleted when it corresponds to the subject of the main clause.

4) John let there be twenty people in the room.

5) John did not permit there to be anyone playing the piano while Alice was asleep.

6) John permitted himself to sleep.

7) *John permitted to sleep.

In addition there is a difference in meaning between the embedding of an active and a passive sentence.

8) John permitted Bill to visit the teacher.

9) John permitted the teacher to be visited by Bill.

This poses the same problems as before in 8.4. The presence of an embedded sentence introduced by there means that sometimes the embedded clause does not cooccur with another noun in the main clause; whereas the change of meaning and the presence of reflexivization do. In fact this other noun must be obligatory, since we must have reflexivization. The sentence

10) *John permitted him to sleep.

is unacceptable if the pronoun is meant to refer to the subject. Consequently we appeal to the same solution as in 8.4. We identify the embedded clause with the object of some preposition. The other obligatory noun is the theme, which if of a sufficiently general nature meaning 'the situation' or 'the universe', may optionally be incorporated.

Hence we have a similar situation to that of force in that we have basically a Positional verb, which may take noun clauses for the objects of its prepositions. However, like force, a negative preposition is not possible with the permissive Agentives:

11) *John let Bill from entering the room.

However, positive prepositions are also not allowable after let or permit, unlike force:

12) *John let Bill into entering the room.

It appears therefore that we have obligatory formation of an infinitival complement. This would also have occurred for the C-Agentives conduce, coerce, for which we have no prepositions apparent on the surface:

13) *John induced Bill into entering the room.

14) *John conduced Bill from remaining in the room.

Consequently the same problem arises here. We shall say in these circumstances that the difficulty is one regarding the necessity to specify somehow the type of complement which the verb takes. Thus, if we have one based on the infinitive rather than ing, the preposition is automatically deleted in the process of the formation of this complement. Force merely has two types of complements, the infinitival and the ing form which maintains the preposition. But the P-Agentives and the others must delete the prepositions forming only the infinitival complement.

The negative preposition becomes reduced only to not in these cases, so that we are left with constructions such as:

15) John induced Bill not to enter the room.

16) John allowed Bill not to enter the room.

17) John let Bill not enter the room.

Thus we may have a very simple representation for the P-Agentives here described in the lexicon. Let will be as given previously in 8.3, with the extension of the Positional to express Circumstance. We must, however, modify this to permit the incorporation of some generalized abstract noun as the theme, which we symbolize in the prelexical structure by IT:

L-1) /let/ in env — V, Motional; Positional (IT)

Allow and permit are similar except that they are nonMotional, which can be seen by the Positional expressions they have:

18) John allowed the cat on the sofa.

19) John permitted his son out of the house.

20) *John allowed the cat onto the sofa.

21) *John permitted his son into the room.

This means that we have the same thing as for let, except with the feature Durational or Nondescript instead of Motional. Since there is no clear idea of the Durational here we shall say that it is Nondescript. Contrast the use of leave, which has a clear Durational sense, with permit:

22) John left the book on the table.

23) John permitted the book on the table.

Leave here means 'let remain' whereas permit means 'let be'. Hence we have the lexical entry:

L-2) /permit/ in env — V, Nondescript; Positional (IT)

Note the difference in:

24) John permitted Bill to leave at any time he might choose, but he never did leave.

25) *John let Bill leave at any time he might choose, but he never did leave.

The second sentence is deviant semantically. This is because the Motional transition implied by let means that John refrained from hindering the coming of the event, which necessarily did come; but the first sentence is all right since permit only means that John refrained from hindering the manifestation of the event, but the event need not actually occur.

The above verbs must have the noun clauses in infinitival form. However there exist verbs which have permissive Agents alone in the subject but manifest the preposition with noun clauses in ing. Thus we have

26) John released Bill from having to do the job again.

27) John freed Bill from working so hard.

It is permissible to have positive prepositions as well, but here we have the infinitival form preferred.

28) John released Bill to visit his parents.

29) John freed Bill to do what he wished.

However, the semantic sense of these sentences, their distinction from the sentences with permit and allow, strongly suggests that these are cases of optional incorporation of a from-phrase that is obligatory in the environment. Thus we can have both in one sentence:

30) John released Bill from having to do the job again to visit his parents.

31) John freed Bill from doing the laundry to do what he wished.

It is clear that free and release are expansions of an ordinary Positional sense

32) John released the bird from the cage.

33) John freed the bird into the tree.

34) John released the bird from the cage to its nest.

Note that away is not possible with noun clauses as well as for the ordinary Positional sense. (See 8.3.)

35) *John released Bill away from having to do the job again.

36) *John freed the bird away from the cage.

A Durational verb might be leave. Surely this is the case in:

37) John left the book on the table.

meaning 'let it stay'. Also in a Possessional sense we can say

38) John left the cat to its owner.

However in

39) John left Bill to wash the car.

we cannot mean that John was allowed to remain washing the car. This is not the sense with allow, permit, and let.

Leave it appears can also be used in the Identificational sense:

40) John left Bill as cook.

meaning that he didn't want to change him. The sentence can also indicate the state in which Bill was when John departed from him, which does not concern us here.

All of the forms of leave except the Positional, must have a positive preposition. We can say none of

41) *John left Bill from cook.

42) *John left the cat from its owner.

although in the Positional we can say

43) John left the pad off of the table.

44) John left the dog at the corner.

Hence we may write for leave, expressing the appropriate options with braces:

L-3) /leave/ in env P-Agent $\underline{\text{Positional}}$ / $\underline{\text{Possessional}}$ / Identificational AT in env $\underline{\text{V, Durational}}$

8.6 The Causative Agentive for the Durational Verbs

The causative for the Durational is keep. This can be used both for the Positional and for its special case, circumstance.

1) John kept the dog in the room.

2) John kept the wheel turning.

3) John kept the wheel from turning.

4) John kept the water out of the room.

Thus keep is related to remain just as force or drive is to go. Keep in fact can be used in a nonAgentive sense, in place of remain:

5) The top kept spinning.

6) The top remained spinning.

Naturally, if the subject is Animate this usage can be interpreted as Agentive:

7) John kept dancing in order to prove his stamina.

8) John remained dancing in order to prove his stamina.

Thus we can have both

9) John kept playing the piano.

and

10) John kept himself playing the piano.

In the first of these we have the subject being the theme which since Human can be interpreted as an Agent. In the second of these 'himself' is the reflexivized theme, the subject being an Agent alone.

There is, however, some difference between keep and remain or stay. The latter occur with all stative prepositions and the complements with all verbs. The former, however, is restricted. Thus we can say

11) The box remained in the room.

12) The box remained red.

But we cannot say

13) *The box kept in the room.

14) *The box kept red.

If sentence 13) were to be acceptable then we would want to say the box had some mobile properties. This is not to say that box must be Animate. It is perfectly acceptable for example to say

15) The ball kept in the room.

Similarly we have

16) The doll remained as a toy.

17) *The doll kept as a toy.

18) The puppet stayed looking like its owner.

19) *The puppet kept looking like its owner.

20) The immobile brick remained on the shelf.

21) *The immobile brick kept on the shelf.

22) The immobile brick remained away from the wall.

23) *The immobile brick kept away from the wall.

With keep we can say:

24) The door kept swinging.

25) The brick kept falling.

26) The water kept within the pool.

27) The molecules kept being active.

28) The leaves kept red for a long time.

29) The fire kept hot.

It seems that the sentence is permissible just in case the situation which is kept is somehow contrary to expectation or necessitates some control. Consequently, if the subject is mobile or animate one might need control to keep it in place, and keep can be used. Similarly, if the subject is prone to change, as leaves and fire in examples 28 and 29 keep may be used. Remain doesn't imply the necessity of some control.

One might consider attempting to relate this idea of control to the fact that keep may also be used as an Agent verb. However, it would seem to be satisfactory to treat this as an idiosyncratic feature of keep. If the theme in the subject is Human, and we can interpret it as an Agent, then sentences similar to those which are ungrammatical above, become grammatical:

30) Bill kept as cook all day.

31) Mary kept looking as young as her sister.

32) John kept being wittier than the other folks on the block.

33) John kept on the platform.

34) Mary kept away from the wall.

The reason why these are acceptable could be attributed to the same fact. That is, certain control on the situation may be necessary. Consequently we will say that this problem belongs to interpretive semantics and lies without our area of study.

The construction in which we have an Agent only as subject, permits the same forms as after remain:

35) John kept the doll looking like Mary.

36) John kept the ball red.

37) John kept the wheel turning.

38) John kept the ball on the shelf.

39) John kept his profession cook.

Just as for remain it is possible to treat the nouns and adjectives that may appear as deletions of being. (See 7.9.) However, also, just as remain, it is not possible to have passives after keep:

40) *John kept Bill tied to the bed by Alice.

41) *John kept the barrel rolled down the hill.

Adjectives made from sentences, different from the passive, are, however, permissible:

42) John kept the lion tied down.

We can consider the complements as noun clauses governed by prepositions. Thus we can say

43) John kept Bill washing dishes.

44) John kept Bill from washing dishes.

The positive preposition is optionally deleted. Thus:

45) John kept Bill (at) washing dishes.

46) John kept Bill at it.

47) What John kept Bill at was washing dishes.

This is also the case for the noncausative use:

48) The wheel kept (at) turning.

49) The wheel kept at it.

50) What the wheel kept at was turning.

The disappearance of the at is considered as deletion before the noun clause because if it were incorporation we would want it to also occur in the Positional aspect. That is, we could say:

51) *Bill remained his desk.

for

52) Bill remained at his desk.

which is not possible. Incorporation is valuable when it is consistent in all cases for a word.

The deletion of being depends upon the deletion of at:

53) *John kept Bill at happy.

54) *John kept Bill from happy.

Note that this is not true for prepositions in Motional verbs:

55) John went from being sad to being happy.

56) John went from sad to happy.

We shall treat keep as having the same environment as remain. The difference described above we attributed to some idiosyncratic semantic behavior which the interpretive semantic component should handle. We have therefore for the lexical entry for keep:

L-1) /keep/ in env C-Agent V, Durational Positional

Here note that we may write an optional C-Agent for some verbs, such as keep, which may be used either with theme as subject or with an Agent as subject. Without anything written before the verb, we can understand ourselves to have the most common occurrence: the theme as subject. This, if Animate, may be interpreted as an Agent.

Keep can also be used in the Possessional sense. Thus we can say

57) John kept the book to himself.

58) John kept the dog to its cage.

59) The child kept to its mother.

60) The ball kept to the far corner of the room.

However, because of the semantic peculiarity of keep noted above, it is not possible to say

61) *John kept the book to Mary.

because book is not mobile, and doesn't require sufficient control for keep to be used.

We also have, however,

62) John kept the book.

which may be either the Durational of Possessional or of Positional. Thus it is apparent that the subject may incorporate a simple preposition. In the case of the Positional we may disambiguate this by reduplication:

63) John kept the ball with him.

The Possessional, however, does not reduplicate:

64) *John kept the book to him.

This is the same as for have. (See 4.3.) The sentence

65) John kept the book from Bill.

is ambiguous between the Possessional and Positional senses. It may be the Positional, as in 'away from Bill', or it may refer to Bill's possession of the book.

While hold is Durational, it has an in in the subject, as seen in 3.4, and consequently we have a difference in the sentences

66) John held the book away from Bill.

67) John kept the book away from Bill.

In the former, we mean that the book is held in John's grasp, whereas for the latter it is merely 'with John'. Also, for keep the incorporation of with in the subject is not obligatory, since there is some possible difference in meaning between

68) John kept the book with him away from Bill.

and sentence 67). Sentence 67) need not imply that the book is 'with John'.

We may alter our lexical structure for keep somewhat to include the Possessional possibility. It will now appear that we should allow keep to be ambiguous between the Possessional and the Positional. When it is Possessional, however, there will perforce be no preposition reduplicated. If an Agent, the subject may also be derived from an AT phrase attached to it, which we may assume may represent both the Positional WITH and the Possessional TO sense.

L-2)

/keep/ in env (C-Agent (AT)) V, Durational {Possessional / Positional}

This implies that if we can have C-Agent in the subject we can have At also.

Retain may be used in the sense of keep except that it is obligatorily Possessional and must not have any preposition in the environment. If obligatorily incorporate in the subject the positive Possessional preposition, to, indicating the subject is the possessor like have. The absence of a from-phrase in the environment is also true for have.

69) John retained the book for five years.

70) *John retained the chemistry set from Bill.

Hence retain is a Durational counterpart of the Nondescript have.

For retain we have the lexical entry therefore

L-3)

/retain/ in env AT V, Durational Possessional

Save can be used in a Durational sense as well. It is not altogether clear whether or not it is Possessional or Positional. The difficulty is probably due to a semantic peculiarity of save, which is that it always implies something or someone undesirable is being curtailed or avoided. Thus it is certainly Possessional in

71) John saved the food from Bill because he wanted it all for himself.

in which we mean to convey the meaning of retention. In a sentence such as

72) John saved Bill from the onrushing train.

we cannot have anything but a Positional sense. In all of these cases it is possible not to imply any Possessional or Positional connection between the Agent John and the theme, and hence as for keep the preposition in the subject indicating this accompaniment is optional.

Save may have a from prepositional phrase only.

73) *John saved Bill in the room.

unless we absurdly mean that the room was the place for John's preservation. It may however stand alone without any over prepositional phrase:

74) John saved the cheese.

One may interpret this as Positional or Possessional, in one sense implying that John remained possessing it and the other simply having it with him. However, it appears to differ from keep which is also Positional or Possessional. Compare the above with

75) John kept the cheese.

It seems that save as well as implying that the cheese was kept, seems to imply that it was displaced from normal position. In other words kept away. We note also that save does not permit away to appear:

76) *John saved the cheese away.

Note also the semi-paraphrase for save in 'put away' or 'put aside'. The sentence, with save away, has a peculiar redundant feeling, similar to that in 'John left away for Chicago'. We can say therefore that away is incorporated in save. This will imply the impossibility of having any other positive preposition. Away can be considered to be something like 'at another place'. If it is incorporated it would not be possible for it to be repeated or some other form to stand in its place.

In addition, if save can also be Positional it is necessary that we somehow prevent reduplication of the preposition of accompaniment in the subject. We cannot say

77) *John saved the milk with him.

as we can

78) John kept the milk with him.

As was seen for deliver, in 7.4, reduplication will not become manifest if there is obligatory incorporation. Since we have incorporation of away, reduplication causes blocking when lexical items are applied. Consequently having away obligatorily incorporated is supported both syntactically and semantically by the prevention of any prepositional phrase other than one in from, and by the prevention of reduplication. In addition, no less important, it will explain the absence of away after save, but not after keep.

Save, unlike retain and keep, has an obligatory Agent:

79) *The house saved its roof through the storm.

We therefore have for the lexical structure for save, so far:

L-4)

		V, Durational Possessional	
/save/ in env	C-Agent (AT)	Positional	AT NP

AT NP stands for away here.

Rescue, deliver, and salvage may be used as Motional forms which we should consider. Like deliver in the sense of bring, these also have an incorporated prepositional phrase in the subject. Rescue and deliver are Positional. Thus we have the following sentence:

80) John rescued the child from the fire.

which implies that the child was in the midst of the fire, but was taken from it. This is in contrast to the Durational

81) John kept the child from the fire.

Similarly, salvage can be used in the sense of take:

82) John salvaged the books from the fire.

Here the theme is likely to be something which is possessed and hence we may call salvage Possessional. It is somewhat absurd to say:

83) *John salvaged the child from the flames.

unless the child were a servant or slave.

Note for rescue and salvage it is clear that it is not possible to say

84) *John salvaged the books away from the garbage heap.

85) *John rescued the child away from the monster.

86) *John salvaged the books to their owner.

87) *John rescued the child from the dragon to its mother.

That is, for rescue and salvage it is not possible to have away, and once more in a parallel fashion, it is not possible to have a positive preposition. This again implies that away is obligatorily incorporated. Indeed, rescue is closer in meaning to take away than take. For rescue this will also prevent the possibility of manifesting reduplication, as any incorporation should.

For deliver it is not so clear that we cannot have away:

88) John delivered the child away from the monster.

In addition, it is conceivable to have a to-phrase:

89) The Lord delivered the children of Israel from bondage to the Promised Land.

Consequently this use of deliver is not essentially different from that which means bring. The reduplication is prevented from becoming manifest by the obligatory incorporation of across as seen in 7.4. The difference between the two sentences

90) John rescued the child.

91) John delivered the child.

does seem attributable to the presence of the from in across which is not in the away incorporated in rescue, though it is difficult to pinpoint.

Thus for salvage and rescue we have

L-5)

/salvage/ in env	C-Agent	AT	V, Motional Possessional	AT	NP

L-6)

/rescue/ in env C-Agent AT V, Motional Positional AT NP

Note, the AT becomes vacuously TO here.

Save, however, can now be seen to be even more general than being both Possessional and Positional. It is possible for save to be used in the sense of both rescue and salvage. That is, save may be Motional as well:

92) John saved the water.

may mean that John rescued the water from contamination, a Motional sense, or it may mean that he stored it, a Durational sense. In the sentence

93) John saved the book from the fire.

we may either mean that he rescued it or hid it in such a way that it was kept from the fire in the first place.

Save as a Motional verb can certainly be used in the Positional sense, since we can say

94) John saved the child from the flames.

in the sense of rescue, for which salvage is not possible.

This use of save runs perfectly parallel to the others. It seems to incorporate away since we cannot have to after it, nor away itself.

95) *John saved the child away from the burning house.

96) *The Lord saved the children of Israel from bondage to the Promised Land.

Also, reduplication is not possible as it is after take.

97) John took the ball away with him from the fire.

98) *John saved the ball with him from the fire.

We may therefore write as a final version for save:

L-7)

/save/ in env C-Agent (AT) V, {Durational / Motional} {Possessional / Positional} AT NP

Just as we have ordinary nouns as objects of the prepositions above, in most cases we can expand this to noun clauses, which, it appears, operate the same way:

99) John saved the child from burning.

100) John rescued the rabbit from being eaten by the wolf.

101) John salvaged the book from being thrown in the junk heap.

102) The Lord delivered the Children of Israel from laboring in bondage.

103) *The Lord saved the Children of Israel from bondage to living in a land of milk and honey.

Prevent is Durational. It paraphrases keep when we have only from followed by a noun clause:

104) John kept Bill from watching television.

105) John kept the television from being fixed.

106) John prevented Bill from watching television.

107) John prevented the television from being fixed.

The impossibility of having a positive goal is again correlated with the absence of away:

108) John kept Bill away from watching television.

109) *John prevented Bill away from watching television.

110) John kept Bill working hard.

111) John prevented Bill working hard.

The last of these may be possible in a negative sense and hence be an optional incorporation of from. Hence we may say that prevent incorporates AT NP obligatorily, preventing any other at phrases from occurring in the environment. In addition it incorporates from optionally:

L-8)

		V, Durational			
/prevent/ in env	C-Agent	Circumstance	AT	NP	(FROM)

Save in some uses is therefore exactly like prevent, except that the former has some notion of danger being avoided.

112) John saved the house from burning, by fireproofing it.

113) John prevented the house from burning by fireproofing it.

Save, of course, can also be Motional, and hence an alternation in the midst of the burning. The context above is designed to bring out the desired meaning.

Other verbs with essentiallly the same structure, but with various different shades of meaning, are restrain, prohibit, bar, debar. All of these imply a particular kind of prevention. Restrain seems to imply some physical contact, and may therefore have an accompaniment phrase in the subject. Prohibit, bar, and debar imply prevention by command or legal means. In this sense, the last three words indicate a prevention that is binding onward into the future. Thus it is semantically feasible to say:

114) John restrained me from watching television, but I managed to get to do it now.

However, there is something wrong with saying:

115) *John prohibited me from watching television, but I managed to get to do it now.

Prohibit is nevertheless different from forbid which is really only an order not to do something, and does not imply that this order was carried out, as prohibit does.

116) I was forbidden to watch television but I did it anyway.

117) *I was prohibited from watching television, but I did it anyway.

Restrict is more like keep in that it allows both positive and negative prepositions.

118) John restricted Bill to playing the piano only.

119) John restricted Bill from drinking wine while Uncle was in the house.

However, the prepositions that occur here are different. They also are the only ones which occur when ordinary places are named, instead of having noun clauses:

120) John restricted Bill to his room.

121) John restricted Bill from the yard.

122) *John restricted Bill under the tent.

123) *John restricted Bill at the door.

Although we can have

124) John restricted Bill to under the tent.

In which the basic preposition is this to, which is not deleted before the Linear prepositions as at is. Nor is it deleted optionally before the noun clause as at is:

125) *John restricted Bill playing the piano only.

126) John kept Bill playing the piano only.

This to is the form of AT which implies a much stronger connection between entities concerned with Possession, as in 'belong to'. The subject does not incorporate any prepositional phrase.

127) John restricted the book to Bill.

128) John restricted the paper to himself.

129) John restricted the territory from farmers.

Compare this Possessional aspect, with the Positional, in

130) John kept his papers with Bill.

131) John restricted his papers to Bill.

In the second we have a much stronger sense of attachment, implying that only Bill would be allowed to possess or to read the papers. In the first we merely mean the position of the papers. Restrict does not have the semantic peculiarity which keep has demanding the theme to be mobile, hence the above. Restrict can then be called Possessional, according to our usage, although the objects of the prepositions do not have to be Human. The necessity to state that the objects are Human is a subclassification, just as it is for Position with send or obtain. We therefore have for restrict the lexical entry:

L-9)

/restrict/	C-Agent	V, Motion Possessional

The fact that there are only two possible prepositions follows from the feature Possessional. In fact, it seems acceptable to have both in one sentence. Consider:

132) John restricted Bill to playing the piano only.

133) John restricted Bill from watching television.

134) John restricted Bill from watching television to playing piano only.

Somewhat different from restrict and retain but still Possessional is deprive. This verb obligatorily has of following it, which we will take as the reduced form of from. That this is conceivable can be seen due to the possibility of an any when the object of of is a clause:

135) John deprived Bill of eating any bread.

We shall in fact say that in the prelexical structure we have out of here, the same out of that appears in the Possessional sense in

136) John is unfortunately out of money.

In other words, for the Possessional the possessed article is the object of the complex prepositions, as seen in 4.3. Thus, since the object of the of after deprive is the would-be possessed article we say that here we have a prelexical form amounting to out of, the negative of in. Deprive is Durational, with the meaning 'keep out of' in the Possessional sense. Thus compare the two sentences:

137) John deprived Bill of money.

138) John kept Bill out of money.

It may in fact be the case that deprive, as a word, is ambiguous between the Motional and Durational senses, interpreting it also as 'take out of'. That is, the sense might be in the above that Bill had the money (or was 'in the money') and John took it from him. It is unfortunately not possible to use out of in English in the Possessional and Motional sense so that we cannot say

139) *John took Bill out of the money.

any more than we can say

140) *Bill went out of money.

although idiomatically we have

141) Bill ran out of money.

It should be noted that using a simple preposition before the possessor also gives a similar meaning, different in the sense described in 3.4. Hence sentence 137) can also have the approximate paraphrase:

142) John kept the money from Bill.

in which we have from, the simple preposition, before the possessor. Using this construction we can use take, the Motional verb, so that we have

143) John took the money from Bill.

which is a possible paraphrase for deprive. This is possible because from, unlike out of, can be used in Possessional and Motional constructions.

Deprive does not have anything in the subject but Agent. The full form of keep may allow both a positive and a negative preposition, but not together:

144) John saved his silver and kept himself in the money.

145) *John saved his silver and kept himself out of food in the money.

However, keep does take both as is natural for the Positional:

146) John kept himself out of the room in the foyer.

The lack of the full form may be due to the only idiomatic character of the expression 'in the money' so that it does not fall into any from-to pattern. Similarly, after deprive we can only have the one negative expression:

147) *John deprived Bill of food in the money.

Hence instead of our usual method of saying that the positive preposition is restricted due to incorporation in the subject of one such preposition (which is not possible here) or due to the incorporation of some at-phrase after the verb (which is possible here) we can restrict it merely to the negative preposition. Since out of is really FROM IN, we can specify this in the verb, so that our lexical structure is

L-10)			V, Durational Possessional	
	/deprive/ in env	C-Agent	NonDominant	FROM IN

There are some Duration verbs whose subjects are themes which are also obligatorily Agents. This is to be compared with keep whose subjects may be themes, and then are optionally. One such form that must have a negative preposition is avoid:

148) John avoided dancing.

We treat this, for such reasons as have been described, parallel to keep away from. Thus we have for its lexical structure:

L-11)			V, Durational	
	/avoid/ in env	C-Agent	Positional	AWAY FROM

Note here that we specify the fact that the subject is the theme by having no incorporation in the subject. Consequently, the line does not extend past the left of the verb. However, we specify that the verb must be in the environment of a C-Agent. The relevance of our formalizations for the lexical entries with the strings generated in the prelexical system will be treated in 9.3.

Avoid can be used for both physical entities as objects of the prepositions, and can have noun clauses:

149) John avoided the tree.

150) John avoided being witty.

Consequently Positional is an adequate feature. Refrain is similar, but must have a noun clause, or abstract noun indicating a circumstance:

151) John refrained from acting too rash.

152) John refrained from lively activity.

153) *John refrained from the tree.

Consequently we can use the feature Circumstance.

8.7 The Causative Agentive in the Identificational Parameter

For the Agent forms for the parameter Identificational we have noted several times that the subject of turn, change, transform may be Agent only. They may in addition be simply themes. This is the same situation as for keep. We may formalize this by ascribing to these verbs the following prelexical structure:

L-1)			V, Motional	
	/transform/ in env	(C-Agent)	Identificational	

Without C-Agent, which is optional, we have the theme as subject. With it we have only C-Agent in the subject. The theme, when alone, may automatically be interpreted as Agent as discussed. Thus we have respectively, Agent only, theme only, and the theme interpreted as an Agent:

1) John changed the snake into a dragon.

2) The trees changed color.

3) John changed to a doctor.

Turn, as noted, obligatorily incorporates or deletes the simple preposition to. This is the case for the causative as well.

4) John turned Bill a doctor.

5) John turned Bill cook.

6) *John turned Bill to cook.

Consequently we have the difficulty for incorporation noted in 7.6. Disregarding how we handle TO, we have for turn

L-2) /turn/ in env (C-Agent) V, Motional Identification (FROM NP)

As was seen previously, we have a from-phrase incorporable.

Make and render can be used as a causative of Identification also, similar to its uses as a causative of Circumstance:

7) John made Bill a doctor.

8) John made Bill farmer.

9) John made the coach into a pumpkin.

10) John made the coach a pumpkin.

11) *John made Bill to a farmer.

Hence it appears that make also deletes to obligatorily. But it optionally incorporates both into and to. This may be specified as follows:

L-3) /make/ in env C-Agent V, Motion Identificational TO IN

This may be combined with the structure for make in 8.4. As usual, we can have adjectives also, which correlate with the Identificational parameter.

12) John made Bill witty.

This is not deletion of be, since with be we may have an Agent subject implied:

13) John made Bill be witty.

This has a different meaning.

There is a relationship between the above and such constructions as

14) John made a pumpkin out of the coach.

Both the apparent theme and the object of out of can take a qualifier:

15) John made every pumpkin out of a coach.

16) John made a pumpkin out of every coach.

But not both at the same time:

17) *John made every pumpkin out of every coach.

It seems that sentence 16) means the same as

18) John made every coach into a pumpkin.

despite the fact that we have reversal of theme and object of the preposition. A similar situation may be observed in

19) The shrub developed into a tree.

20) The tree developed out of a shrub.

Just as we cannot qualify the object of into after turn and make, we cannot say

21) *A shrub turned into every tree.

Whereas for the out of construction either can be quantified, but not both:

22) Every tree developed out of a shrub.

23) A tree developed out of every shrub.

The last is identical to

24) Every tree developed into a tree.

It seems that the quantified object of out of must be different from the ordinary element of a to-from pattern of the identificational parameter, since we can say:

25) The plant developed out of a shrub into a tree.

but not

26) *The plant developed out of every shrub into a tree.

The subject when the object of out of is quantified cannot be definite. This may be for the same reason that it cannot be quantified. The subject then is forced to be of the same type as the object of into. When we have out of either the subject or the object may be the class name, which cannot be definite or quantified. Both of them cannot be. One is the object which is being identified. Thus in 22) while the subject is the theme it is also the object being identified, whereas in 23) the subject is theme again but represents the class, being the same semantically as the sentence below it.

Other words that behave this way are result in-result from, evolve, grow.

When the objects of the prepositions indicate the identification, as both into and out of may in all these cases, we may say this is the simple parameter of identification. However, when the subject or theme does, as may occur in all the above verbs as well, we have something different.

Except for the Durational leave there do not seem to be any permissive Agentive verbs which express the identificational parameter.

8.8 The Semantic Relationship between the Causative and Permissive Agentive

The causative Agentive and the permissive Agentive enter into a relationship with each other with not of the same type as that between the Durational

and Motional verbs. (See 4.5.) Consider for example the similarity between the pairs:

1) John didn't let Bill watch television.

2) John kept Bill from watching television.

3) John allowed Bill not to watch television.

4) John didn't keep Bill watching television.

5) John let Bill watch television.

6) John didn't keep Bill from watching television.

7) John didn't allow Bill not to watch television.

8) John kept Bill watching television.

These sentences can be shown to be equivalent with both the relationship between remain and go and an exactly similar one between the C-Agentive and P-Agentive.

E-1) NOT C-Agent = P-Agent NOT

Just as for remain and go, one is more common than the other, namely the C-Agentive is more common. We shall, however, assume that they are both equally basic, having no other reason to assume one is derived from the other.

We can demonstrate some of the equivalences above. For example, in the first pair we begin with NOT P-Agent, which becomes C-Agent NOT. The underlying verb we consider Motional, so that at this stage we have something like

9) John caused Bill not to come to watch television.

The direct causative 'John caused Bill not to watch television' may be a negation of the clause itself, and hence may imply motion away from watching television, while already watching it. That is, since let is Motional, we now also have the sequence NOT V, Motional. This as we know is equivalent to V, Durational NOT. Consequently we have keep, the Durational causative, followed by a negative preposition. The others follow in the same fashion.

Using a more clearly Motional verb such as free we have the equivalences for the first two:

10) John didn't free Bill to watch television.

11) John kept Bill from watching television.

12) John freed Bill from watching television.

13) John didn't keep Bill watching television.

Thus having matching pairs requires that we have a C-Agent in one and a P-Agentive in the other, as well as one being Durational and the other Motional.

In the Positional aspects with leave we also have this relationship. For example, consider the pair:

14) John left the pad off of the table.

15) John didn't bring the pad onto the table.

Since leave is P-Agentive and Durational, the equivalent form, with the preposition negative, is C-Agentive and Motional. Similarly we can have an identity in the parameter Identificational:

16) John didn't leave the house as a shack.

17) John changed the house from a shack.

Similarly in the Possessional:

18) John didn't leave the book to Bill.

19) John took the book from Bill.

8.9 Table of Verbs

One test of a theory would be its degree of fitness in organizing the elements of the data. We have shown a number of verbs all of which interrelate and overlap in their uses according to various elements in the prelexical structure. In this section we give a table of some of the verbs discussed in the preceding chapters, according to these elements.

Attempt has been made to arrange the entire table so that when a word falls into more than one position, that set of positions can be seen together. The fact that such an arrangement is possible must be considered of some significance.

The justification for the entries being in the positions indicated has been given in the preceding text.

Table I

	MOTIONAL	DURATIONAL
nonAgent		
POSSESSIONAL	lose inherit, acquire receive, get	keep, hold, retain
POSITIONAL	receive, get fly, roll	keep, hold
CIRCUMSTANCE	go, come, wander	stay, remain
	go, come, wander	keep
	change	stay, remain
IDENTIFICATION	change, turn, become, grow	keep, stay, remain
C-Agent		
POSSESSIONAL	give, sell obtain	deprive retain restrict
	get	take, save — save, keep, hold
POSITIONAL	get, bring send, transfer, carry	take, save — save, keep, hold
	fly, roll, push enter, fall — deliver, rescue	restrain
CIRCUMSTANCE	force, coerce	take, save — save, keep, restrain
	cause — deliver, rescue	prohibit
	make	keep, bar
IDENTIFICATION	make change, turn, convert, develop	
P-Agent		
POSSESSIONAL	accept grant, bequeath	leave
POSITIONAL	admit, drop	leave
	release	Nondescript
CIRCUMSTANCE	release — let	allow permit
	free	
IDENTIFICATION	- - - -	(leave)

9. FORMALIZATION OF AGENTIVE VERBS

9.1 The Optional Interpretability of Verbs as Agentive

We have noticed that the majority of verbs which are not obligatorily Agentive and which may have nonAnimate subjects as well as have Animate subjects, become interpretable as Agentive when they do have Animate subjects. This is the case with the majority of Motional verbs, which may have the theme as subject or a subject derived from some prepositional phrase. We have treated this as essentially a marking problem from the point of view of the lexicon. That is, those verbs which are optionally Agentive in the sense described are unmarked. For example the lexical structure of float, omitting the characterization of the particular kind of motion involved here, would merely be:

L-I)	V, Motional
/float/ in env	Positional

The above specification also includes the fact that the subject is the theme, which, since it is the most common occurrence, is unmarked. Thus float can be used with nonAnimate nouns, necessarily nonAgent:

1) The log floated into the mill.

or it may be used with an Animate subject, being either Agent or not.

2) John floated to Bill in order to prove to him that he could.

3) John floated out of the lake because he had fallen asleep and wasn't paying attention to the currents.

The question that we must now answer, however, is whether this property of most Motional verbs is due to semantic interpretation only, i.e. whether the underlying structures of two sentences, identical except that one is interpreted as having an Agent subject and the other not, are the same, or whether in the prelexical structure onto which these words are mapped there is a difference. In either case our lexical assignment for such words would be the same. If we choose the first course in which there is no structural difference, then the semantic component alone will be assigned the task of deciding which it is, the lack of marking indicating the possibility for two interpretations. If we choose the latter course then our lack of marking indicates that the lexical item may be mapped either onto a prelexical structure which itself is marked Agent or onto one not marked with Agent. That is, the syntactic distinction if any will always be made on the prelexical level. Such words that are not marked in the lexicon may be mapped onto the prelexical structure whether or not the subject has been determined to be Agent on that level.

We have yet to indicate in what way the presence of an Agent is to be manifested on the prelexical level. But it is clear that this will be necessary. There are, as has been shown, verbs which have subjects that are solely Agentive. For example the subjects of

4) Bill caused John to suffer.

5) Bill rolled the ball into the room.

6) John pierced the pencil through the paper.

are clearly purely Agent, the activity being willed entirely separable from the subject. This of course is not the case in

7) John brought Bill a book.

In which the subject necessarily participates in the activity. In such cases as this we have prepositional phrases incorporated in the subject. Since we can have sentences such as:

8) John inherited money from his uncle.

we know that prepositions can be incorporated in the subject without there being an Agent subject at all. Consequently there are verbs which have only Agent subjects, verbs which have subjects derived only from the theme or from some prepositional phrase, and subjects which either optionally or obligatorily may have the theme or prepositional-phrase derived subject combined with Agent. In such sentences as

9) The accident caused Bill to be more careful.

we have a kind of abstract instrument phrase. Such instrument phrases, it will be seen, can be generated without a Human Agent as subject, since we cannot say, due to semantic incompatibility:

10) John caused Bill to be more careful by an accident.

Such constructions would be possible. The above is semantically impossible because no one can possibly have influence over the use of an accident. However we do have similar constructions, to which, syntactically, the above belongs:

11) John caused Bill to be more careful by telling him of an accident.

Without having explicitly generated a Human Agent, we can have the abstract instrument in the subject:

12) Telling Bill of an accident caused him to be more careful.

We will discuss this more fully subsequently.

Since the Agent does occur alone as the subject it will be necessary at least in these instances to have a particular representation of this in the prelexical structure. The cases in which the subject is obligatorily an Agent, but is also from some source, or the cases in which it may or may not be an Agent, can be handled by some sort of feature-type marking system in the lexicon. However, if we desire consistency, we should be aware that all the types can be handled by considering there to be a distinction of Agent or nonAgent manifested in the prelexical structure. In fact, since the subject may occur as purely an Agent it appears that the Agent should be manifested in the prelexical structure at least sometimes as an independently generated noun phrase. Having it manifested as a feature of the verb here would be superfluous since it would eventually have to be interpreted as a node in the underlying structure anyway.

It may be feasible then to say that when we have the Agent combined with some theme or prepositional phrase derived subject, we have a situation in which the independent node specifying the Agent has the same referent as the theme or prepositional phrase which ultimately is combined with it. That is, if we

should have a structure such as

Ex-1)

we would have the NP's under Agent and Theme identical. Then by some process or other these may be combined. For example, they would be combined for a verb with which the subject is both the theme and an Agent. In the sentence

13) John slide to the tree.

we may have a subject which is both an Agent and the theme. Slide is like float in that with the theme as subject we have optionally the interpretation that the subject is an Agent. Slide may also be used with a subject that is only an Agent, as in

14) John slid the man to the tree.

Now, if we decide to have an Agent node as well as a theme node in the prelexical structure underlying sentence 13), such an underlying structure would consist of having the theme node and the Agent node dominating noun phrases that have the same referent. However, having an independent Agent node is necessary in sentence 14). If we set up the Agent and theme for this use of slide as having the same referent we get

15) John slid himself to the tree.

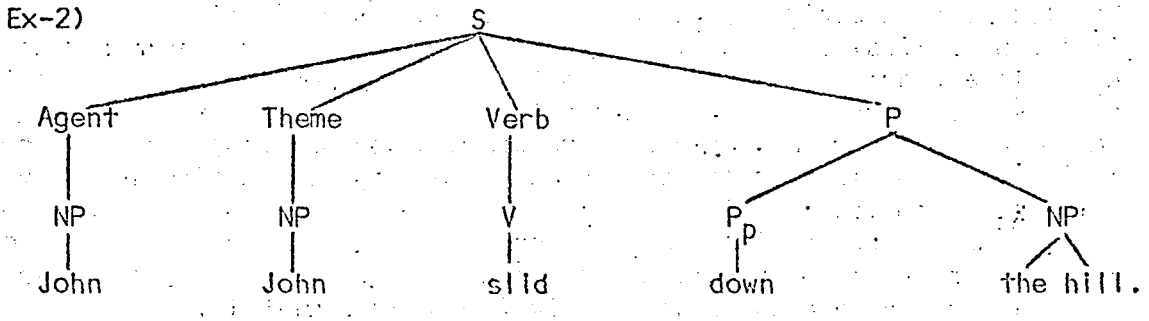
Consequently both sentence 13) and sentence 15) will have come from identical prelexical structures. In 13) the lexical specifications would be such that it is required for the subject to be the theme. In 15) the lexical specification would be such as to require that the subject be a pure Agent. Thus the use of slide in 13) would be the same as that for float, except for the idiosyncratic specifications of the kind of motion involved. We may indicate these specifications by A, so that we would have in the lexicon:

L-2)

	V, Motional
/slide/ in env	Positional, A

This as previously said indicates that the subject is a theme that may or may not be an Agent as well. We may assume this to mean that the lexical item becomes affixed below the V only in the tree of Ex-1). The Agent may or may not be present. Thus specifically for sentence 13) we have the tree developed into:

Ex-2)



We may assume that if the Agent is present in this case it either obligatorily deleted or obligatorily incorporated in the verb. However, it will have been there for the semantic interpretation. For sentence 15) we will have the lexical specification

L-3)

/slide/ in env	Agent	V, Motional Positional A	

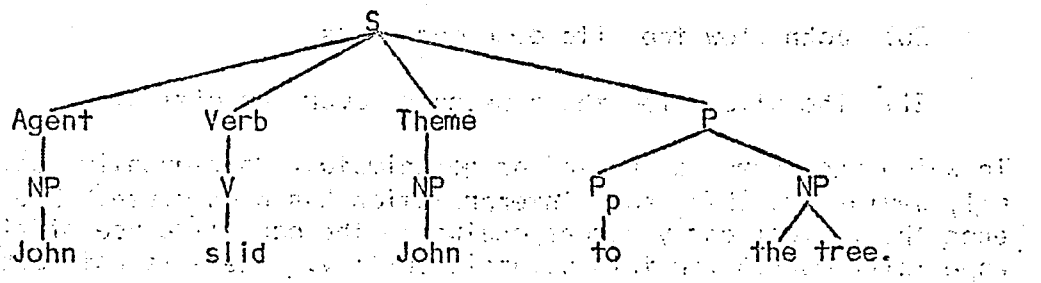
We assume that this use of slide with a subject that is purely an Agent has the same verbal specifications. Consequently we can abbreviate using parentheses to obtain the lexical entry for slide:

L-4)

/slide/ in env	(Agent)	V, Motional Positional A

If an Agent is present as specified above, we interpret this to mean that the subject is an Agent alone and the theme appears after the verb. Thus for 15) we would have for the generated string:

Ex-3)



which of course becomes 'John slide himself to the tree'.

The point of going through this has been to show that sentences 13) and 15) will come from the same underlying prelexical string. If we assume that we ought to have a node for the Agent in sentences in which the subject is theme and interpreted as Agent, then this node will be the same as that in which the subject is Agent alone. Thus given a verb such as slide that can be used both as having an Agent subject and as having a theme subject, and there are many such verbs, the use with Agent alone as subjects and the theme reflexivized would come from the same source as the use with theme as subject interpreted as Agent. Consequently sentences 13) and 15) would come from the same source in the prelexical structure. If we fix the environment so that sentence 13) could only be interpreted as having an Agent subject then we would have to predict that we would have identical meanings. Compare the sentences:

16) John slid to first base in order to avoid being tagged out.

17) John slid himself to first base in order to avoid being tagged out.

The resolution of the problem whether or not we should base the difference between theme subjects that are optionally Agent on a difference in the lexicon only or on a difference in the prelexical structure as well depends crucially on answering whether or not the above two sentences are identical in meaning. If there is a distinction in the prelexical structure then the above will be the same. If there is a distinction in the marking then the above may be different. They will be different because they would then have different histories in their generation. The second one would have begun with an Agent node which the first

did not. The first would be marked as Agentive by later interpretive rules. Hence if they should mean the same, and if this is the general case, then adjusting the marking so as to indicate this fact would be a somewhat superfluous if not ad hoc procedure in light of the possibility of starting with the Agent node in the first place.

It seems to me that I could find no clear cases in which there was a difference, except in cases in which the explanation for the difference was possible. For example the sentences:

18) The bird flew into the cage in order to get some food.

19) The bird flew itself into the cage in order to get some food.

may be somewhat different. In the second sentence one gets the feeling that the bird is using its body as a mechanical object. This is so because the causative use of the word fly requires that the theme be treated as if it were an inanimate object, such as kite, or implies flight by means of an automotive vehicle such as an airplane. We can say

20) John flew the kite over our heads.

21) The pilot flew the passengers over the cities.

in which the theme is treated as nonAnimate. Consequently sentence 19) is actually deviant to which some interpretation has been given. Due to this difference the lexical entry corresponding to the causative use of fly will have to be especially marked for this semantic quality. There is not such marking necessary for the noncausative form. We can say 'the bird flew' as well as 'the airplane flew'. Consequently, due to this difference we cannot make the simplification in the lexicon as in L-4). The two sentences, while being derived both with an Agent node, will be marked differently according to certain idiosyncratic features, which account for the difference.

There are other instances in which the subject can be a theme or an Agent but for which the reflexivized causative doesn't mean the same as the one with the theme as subject interpreted as Agent. But in these cases as well, it appears that the idiosyncratic nature of the intransitive verb and the causative are different themselves. Thus we may have walk.

22) John walked himself around the block.

23) John walked around the block.

The first sentence, if acceptable, is probably the same use as in a sentence such as

24) John walked the dog around the block.

It is clear that John led the dog in some sense. However, the other simple causatives do not gain this meaning: the sentence

25) John moved the train along the track.

may mean that he effected this action by giving a signal. With walk this is unlikely. The causative means something like 'take for a walk'. Hence this

difference in meaning between the causative and theme is reflected in the difference between 'John walked' and 'John walked himself'.

Another difficulty is with drop. If one accepts 'drop oneself' as English then there is certainly a difference between the two sentences:

26) John dropped himself into the pool.

27) John dropped into the pool.

The first is a permissive Agent, meaning 'let fall'. The second, however, cannot be an Agent at all. Thus we cannot say:

28) *John dropped into the pool in order to find the treasure at the bottom.

This peculiarity means that we must mark the non-causative form as being non-Agent obligatorily. Hence we would have for this part of drop,

L-5) /drop/ in env $\begin{Bmatrix} \emptyset\text{-Agent} \\ \text{P-Agent} \end{Bmatrix}$ V, Motional Positional

It is not sufficient to mark simply optional P-Agent. If there is no P-Agent the sentence cannot be Agentive at all which must be marked. Hence we use brackets to indicate the option.

Compare also the following:

29) John moved himself off of the chair because he wanted to become more comfortable.

30) John moved off of the chair because he wanted to become more comfortable.

31) John rolled himself over the hill in a barrel in order to impress people.

32) John rolled over the hill in a barrel in order to impress people.

33) John floated himself into the mill by using a barge.

34) John floated into the mill by using a barge.

These seem to be the same.

Repel optionally incorporated a from-prepositional phrase in the subject, which, just as the theme in the above cases, may have the interpretation of being an Agent if Animate. When there is not a from-phrase in the subject the subject is purely Agent and the from-phrase may appear in the environment so that reflexivization of the object of the from-phrase will give us sentences such as above. The same story is true for attract with the preposition to. Thus compare the sentences:

35) John repelled the dragon from himself by uttering the magic word.

36) John repelled the dragon from him by uttering the magic word.

37) The spider attracted insects to itself by discharging an odorous gas as they flew by.

38) The spider attracted insects to it by discharging an odorous gas as they flew by.

With reflexivization the subject is always an Agent. In these it is necessary to have the reduplicated prepositional phrase in order to indicate in the second sentences of the pairs that there is a prepositional phrase in the subject. Otherwise it may be a purely Agent subject, which would make a difference.

One possible difference between the pairs is the possibility of emphasizing the reflexivized noun phrase in the sentence in which it appears. Thus such a sentence can be used in ways in which the sentence with the theme or prepositional phrase incorporated in the subject cannot. For example, in contrastive situations, we would have to use the reflexivized form: we have

39) John didn't float Bill into the mill by using a barge. Rather he floated himself into the mill.

preferable to

40) John didn't float Bill into the mill by using a barge. Rather he himself floated into the mill.

In contrasts with <u>even</u> we have

41) John hid Bill in the closet, and even hid himself there.

42) John hid Bill in the closet and even he himself hid there.

Also, in answer to a question such as 'who did Bill hide in the closet', we are not likely to have 'Bill himself hid in the closet', but rather 'Bill hid himself in the closet'. If one contemplates on this, it may become evident that the information conveyed in both of these answers is the same, regarding the event in the outside world. The first reply doesn't seem like a reply to the particular question given, however. The particular question given interrogates the theme, inquiring as to which member of a whole range of objects that theme belongs to. In the first reply, however, the set of possibilities is reduced to one, namely the same as the subject. The construction of the sentence demands that the Agent and theme be identical. Consequently the answer does not indicate which member of a set of possibilities actually participated in the action. In order for the theme to be seen as a particular member of a set of possibilities it must syntactically be free to exhibit the full set of possibilities. But this is not possible in the first reply since there is the requirement for this construction that the theme be the same as the Agent, which requirement is not in the question.

The difficulty then can be attributed to the constraints on the possibilities due to syntactic construction. This sort of thing occurs elsewhere. The sentences

43) John considers Bill to be a fool.

44) John considers Bill a fool.

are synonymous and we would want to derive the latter from the first by deleting be. However, the first can be used in a contrast such as:

45) John considers Bill to resemble a fool.

whereas the latter cannot be:

46) *John considers Bill to resemble a fool but Mike considers Bill a fool.

47) John considers Bill to resemble a fool but Mike considers Bill to be a fool.

We need a double contrast overtly expressed.

A similar thing may be seen to occur in the pair:

48) Who did John give money to? John gave money to some organization.

49) *Who did John give money to? John gave money.

In the second pair, although the sentence by itself implies that he gave money to some organization, it cannot be used to answer the question, because in the answer the syntactic form does not permit the range of possibilities implied in the question.

Without any clear evidence to the contrary we shall assume that the two forms in question do have the same meaning in the referential sense which we require. We will say therefore that this is evidence for assuming that there exists an Agent node in all cases, even those in which the subject is optionally interpretable as such.

Other evidence for this is in the syntactic occurrences that become manifest with Agent and not with nonAgent forms, independent of whether the subject is obligatorily Agent or whether it has been 'interpreted' as such. Thus instrument phrases occur with both.

50) John rotated with a chain.

51) John rotated the platform with a chain.

52) John floated with water wings.

53) John floated the baby with water wings.

54) John acquired the book with coercion.

55) John fetched the water with a pail.

Acquire is optionally Agentive, which can be seen by the possibility of having the instrument phrase above, but the possibility of having also a because clause indicating the reason for the action as distinct from the purpose the Agent. Fetch must be Agentive.

56) John acquired the money because someone wished to honor him.

But in this sentence

57) John fetched the money because someone wished to honor him.

we must force quite a different meaning.

But in the absence of any notion of Agent the instrument phrase is not possible. Consequently we do not ordinarily have sentences such as the following:

58) *Bill dropped from the plane with a release mechanism.

59) *The water flowed with locks.

60) *The blood coursed through his veins with a heart pump.

However, if we conceive of the actions as having an Agent, unexpressed, then even if the subject of the sentence is not an Agent, we can have an instrument phrase. In theme instances the subject is not the one using the instrument. but some Animate entity unexpressed. Thus even the above sentences can be construed in this sense given the proper context.

61) Nothing could at first be found that would effectively drop Bill with his parachute over the correct area. Finally a release mechanism was invented with which Bill dropped from the plane correctly.

62) The water finally flowed smoothly with a proper arrangement of locks.

Such a thing as this is readily possible with verbs used with themes as subject but which may also be used with a solely Agent subject:

63) The wheel rotated with a stick.

64) The piano rolled easily with wheels.

But we can have a similar construction with verbs which cannot be used in the causative sense with a subject solely Agent. This is the case with flow above. We may also have this with come, go, die:

65) The nail came away from the wall with the back of a hammer.

66) John finally went through the slightly too small hole with a shove.

67) Rasputin finally died with a sufficiently large dose of cyanide.

However, for verbs with theme as subject which are obligatorily an Agent as well, such as swim, walk, gallop, dive, etc., it is not possible to have an instrument phrase which implies an Agent unexpressed. The instrument phrase must refer to the subject of the sentence which must be Agent. In the sentence

68) John dove into the ocean with a push.

it must mean that John himself made the push, if conceivable. Similarly consider the following:

69) The child finally swam with water wings.

If the child is considered the Agent of the action, then it is not possible to construe the above instrument phrase as being in connection with some unexpressed Agent, as it is when the subject is not Agent.

This last fact could be due to the impossibility of generating in the prelexical structure more than one Agent for a string, so that if the theme subject is obligatorily Agent, the Agent could not also be someone else, albeit unexpressed.

The fact that we can have an instrument phrase only if the subject is Agent or if an Agent is implied suggests that it always be generated with an Agent node, of which we have but one per sentence.

The possibility of having an instrument phrase even when the subject is not Agent, but implying some other Agent, may mean that there exists a node which dominates both the instrument phrase and the Agent phrase. Then we could have either of these being optionally expressed. This would imply that a sentence which doesn't have an Agent or an instrument phrase may nevertheless be interpreted as having some Agent unexpressed. This indeed is the case, for example, in the sentence we may have an Agent implied.

70) The nail came away from the wall.

71) The wheel rotated. (by itself or with the help of someone)

Related to this is the possibility to have the instrument phrase incorporated in the subject position. It is possible for the instrument phrase to substitute for the Agent in causative sentences:

72) Poison finally killed Rasputin.

73) A stick rotated the wheel easily.

74) Wheels effectively rolled the piano out the door.

Also, it is possible for the instrument phrase to substitute for an Agent subject in which we have a to or a from phrase incorporated ordinarily.

75) John bought the book with sufficient money.

76) Sufficient money bought the book.

77) John sold the book with a little persuasion.

78) A little persuasion sold the book.

But we do not have either of the following, as would be expected.

79) *John sold the book with money.

80) *Money sold the book.

The instrument in the subject and as an adverb have the same occurrence restrictions.

However, if the theme is the subject which is also an Agent, the instrument phrase may not replace it:

81) John walked into the room with a cane.

82) *A cane walked in the room.

Of course if the verb is in use as a causative this is possible as already noted. But the above is impossible because there must always be a theme somewhere in the sentence. However, unlike the to or from phrase the preposition of which is said to be incorporated in the verb, for the theme we specify no incorporation. Hence, a simple extension of the incorporation allows the whole to or from phrase to be entirely incorporated when an instrument is to be incorporated. To specify that in these instances the theme is incorporated would be a much greater extension.

A verb such as flow which cannot be used as a causative, cannot have an instrument in the subject:

83) *A proper arrangement of locks finally flowed smoothly.

Nor can we have either

84) *John flowed the water with a proper arrangement of locks.

or

85) *A proper arrangement of locks flowed the water easily.

The possibility of an Agent alone in the subject, that is, a causative, is necessary in order to have the instrument phrase in the subject.

The node that we have decided might dominate both the Agent and the instrument phrase is then the element that is specified as the subject of a causative. We will call this node Agt. Since Agt may dominate both permissive and causative Agents we have the rule:

R-1) $Agt \longrightarrow \begin{Bmatrix} C\text{-Agent} \\ P\text{-Agent} \end{Bmatrix} + Inst$

Here Inst stands for the instrument phrase. We may have both, one, or neither of the elements. We might then consider a sentence to be generated by the initial symbol S which has the following expansion:

R-2) S ---> (Agt) + Event

This rule must precede the rules in 6.1 which expands Event. We note that having generated Agt but having chosen the option of having no further expansion corresponds to the possibility of interpreting a sentence which has no Agent in the subject as nevertheless having some Agent unexpressed. If we choose Agt but subsequently only choose the instrument phrase, then we have sentences in which the subject is not Agent but some Agent is implied.

If the subject may be solely Agent, as in a causative, then it will be marked as having the possibility of a subject being Agt instead of C-Agent. This can correspond to the case unmarked as to whether or not we have C-Agent or P-Agent. Since C-Agent is much more common, we express the generality of this by having this the unmarked situation, specifying only Agt. If we have P-Agent, then we would have to mark Agt especially for this. This is another reason for assuming the existence of a higher node than Agent.

We will now become more specific. For a verb with a subject that must be Agent only, such as propel we will write the following in the lexicon omitting details:

L-6) /propel/ in env Agt V

The node Agt may dominate therefore C-Agent, C-Agent and Inst, or just Inst. We do not intend that the lexical entry should permit the expansion to have P-Agent as this would be a case of further marking. If we only have generated C-Agent, then the lexical replacement is straightforward. Also, if we have only generated an instrument phrase without C-Agent the replacement is straightforward. If we have just C-Agent, then the verb will incorporate the marker that specifies it, leaving the noun phrase to the left of the marker incorporated in the verb. If we have Inst, we have a prepositional phrase with some form of with. We can conceive of the with then being incorporated as well, just as with all our incorporation in subject position, leaving its object to the left of the verb. However, if we have generated both C-Agent and Inst, we will have to stipulate that it is a feature of the system not to incorporate both. We will say that the instrument phrase may be moved optionally at all times to a later part of the sentence, out of the subject. If both Inst and Agent are present the procedure will block unless the Inst has moved. The Agent cannot move because it will also be a feature of the system that C-Agent and P-Agent only exist in the subject. The generation will block if neither Agent nor Instrument is generated since the lexical entry specifies that the subject must be some Agt. The procedure will block for the same reason if we had generated in the prelexical structure only Inst and not C-Agent, and then performed the option of moving the Instrument phrase to a later part of the sentence leaving nothing that can exist in subject position for this lexical entry. Consequently we have the following possibilities and impossibilities predicted regularly simply by having the above lexical entry:

86) John propelled the missile forward.

87) John propelled the missile forward with gasoline.

88) Gasoline propelled the missile forward.

89) *The missile propelled forward.

90) *The missile propelled forward with gasoline.

A similar circumstance to this is the case in which we have optionally a theme or a pure Agent as subject, for example roll. The lexical entry for roll, omitting particulars, would be

L-7) /roll/ in env (Agt) V

If we generate no Agt then we choose the option without Agt for this lexical entry, giving a sentence such as

91) The ball rolled into the room.

which we take to imply that there was no Animate entity effecting the action. If we generate Agt but expand it no further then the above sentence suffices

with the idea that someone effected the action. If we choose to generate only Inst, then having the option of moving it forward in the sentence, we would have

92) The ball rolled into the room with a properly placed shove.

This is permitted since the subject may be theme. However, it may also be Agt, so that the Inst may stay in the subject position yielding:

93) A properly placed shove rolled the ball into the room.

Since the subject may be Agt, if we had generated C-Agent alone, or C-Agent with Inst, the Inst being manifested obligatorily in a later part of the sentence, we would have respectively:

94) John rolled the ball into the room.

95) John rolled the ball into the room with a properly placed shove.

In addition it is possible to have the theme in the subject and have generated a C-Agent, or C-Agent with Inst. In the first case we would get

96) John rolled into the room.

in the sense that John is an Agent of the action as well as the theme. For this the lexical entry is satisfied by choosing the option without Agt specified. We understand this to allow the verb to be used when the subject is theme, but in which an Agent is present as well. We shall formalize exactly on what sort of structure the verb is being mapped in section 9.3. If we generate both Agent and Inst the Inst must occur later in the sentence so that we have

97) John rolled into the room with an effective push.

As noted previously, we do not have

98) *An effective push rolled into the room.

One might try to generate this by having generated only Inst, which would occupy the position of Agt. However, the theme must also be present as subject, and it cannot be incorporated. Hence this attempt will block, as the lexical entry specifies that the subject is a theme. Of course we can have John being the theme but not the Agent, and then have the subject be an instrument, in the causative pattern:

99) An effective push rolled John into the room.

Sentence 94) above is ambiguous between the senses that John is an Agent of the action and the instrument phrase being attributed to him, and the sense that John is only the theme and an unexpressed Agent is correlated to the instrument phrase. This sentence is then of the same form as 89), except that the theme is Animate.

Verbs such as flow, stream, course, migrate, step, strut, crawl, dart, etc., are not usable as causatives but must have the theme as subject. Hence we have for these:

L-8) /flow/ in env V

This implies that the subject must be a theme, and may be Agent as well if Animate. For some of the above the subject is obligatorily Animate, and for others it is obligatorily not Animate. The question as to whether an obligatory Animate subject is due to it being an obligatory Agent or whether it itself is the requirement should be discussed. For example, step can be used as a nonAgent verb. Thus step can be used in the complement of verbs which only take nonAgent forms:

100) John ignored stepping into the cold water.

101) John resented stepping behind the rest of the people.

But we cannot say:

102) *John ignored making himself step into the cold water.

103) *John resented pursuing the rest of the people.

Consequently it seems that for a number of verbs we should not mark them as obligatory Agent but rather as obligatory Animate. It also seems that some of the verbs above are never Agent because the subject cannot be an Animate noun, not even one referring to a solid, such as flow.

Acquire is a verb which has a subject derived from a to-phrase and may be either Agent or nonAgent, the unmarked case. Consequently we would have for the lexical structure, omitting details

L-9) /acquire/ in env TO V

which implies that the subject is the object of TO. Thus we may have

104) John acquired the book from Bill.

which may or may not be Agent. If we generate Agt, then if we generated both Agent and Inst we might have

105) John acquired the book from Bill with money.

in the sense that John himself paid the money, since the Agent and theme must be identical. However, if we had generated only Inst the above would be the outcome of having transposed the Inst to a later part of the sentence, implying that someone other than John paid the money, and that John was entirely passive. If we had in this case not moved the Instrument phrase out of the Agt node to a later part of the sentence, then we could have

106) Money acquired the book from Bill.

The to-phrase must be incorporated, since it cannot be expressed.

107) *Money acquired the book to John from Bill.

In

108) Money acquired John a book from Bill.

we have a for-phrase in which the preposition has been deleted.

109) Money acquired a book for John from Bill.

In order to specify that if we have an Agt the entire noun phrase may be incorporated we could write for acquire:

L-10) /acquire/ in env (Agt) NP TO V

Note that the specification Agt when not underlined indicates that the subject is something besides beings Agt. It is not incorporated in the verb but precedes the verb, more or less as a sentence adverb. After the requirement that the subject, whether from the theme of some prepositional phrase, be identical to the Agent noun phrase takes effort, the theme or the object of the preposition will become deleted due to this identity. Since it appears to be a regular phenomenon that with a subject derived from a to or a from phrase we can have an Instrument subject, we can perhaps allow the deletion of the object of the preposition to extend to these circumstances, instead of the above. When the theme is subject there can be no deletion, however.

The essential thing is to show that the instrument phrase is associated with the Agent and that it is efficacious to have a node, e.g., Agt, which dominates them both. This is due to the fact that they cooccur and the fact that given a verb which manifests an Agent in the subject, the instrument may also be in the subject. Hence naming the Agt as the subject for such verbs is all that is necessary. There is difficulty for this only when the subject is derived from a prepositional phrase, in which we should expect that the maintenance of the Agt in the subject position would be prevented.

Similarly we have seen that in order that occurs with the Agent node. This is associated with Agent and not Agt since it doesn't occur when the subject is an instrument:

110) *A shove rolled John down the falls in order to surprise the people.

9.2 The Nature of the Agent Node

The nature of the Agent node will now be discussed. One possibility that must be considered is that Agent in the prelexical structure is actually the subject of some verb such as cause. That is, the following sets of sentences will have similar underlying forms:

1) John caused the ball to roll down the hill.

2) John rolled the ball down the hill.

3) John caused himself to slide to first base in order to avoid being tagged out.

4) John slid himself to first base in order to avoid being tagged out.

5) John slid to first base in order to avoid being tagged out.

6) John caused Bill to believe that it would snow.

7) John convinced Bill that it would snow.

8) John caused Bill to die.

9) John killed Bill.

We would of course also posit some underlying verb such as let for the permissive agents. However, note that according to our system, this would solve no problems whatsoever; since we would subsequently have to ask of what nature the subjects of cause and let, or their equivalents, are. We decided previously that these subjects were purely Agent, either P-Agent or C-Agent. Hence the question would revolve back on itself.

Let us assume, however, that we could set up cause and let or some similar verb in the prelexical structure as unique unanalyzed verbs. The two types of Agent would be the subjects of these verbs whereas the rest of the sentence would be some sort of complements to them. It would not be clear, however, how this would differ from assuming that the Agents were simply nodes as generated above in 9.1. In fact, there doesn't seem to be any advantage to saying that a verb such as cause or let underlies these sentences unless such verbs could be constructed without the use of the notion Agent. It might for example be possible to relate these underlying verbs to go and remain, the Motional and the Durational, so that the equivalences with not could be understood in the same light. For example, our underlying causative verb might give the interpretation of 'Y causes X' as 'X comes from Y'. Similarly we could use the Durative for let and have for 'Y lets X', 'X remains from Y'. Then the relation with not follows immediately from that between the Motional and Durational. Note also that associating the C-Agent with the Motional and P-Agent with the Durational has the advantage that there can be the same explanation for the fact that both the Motional and the C-Agent are the more common over the Durational and the P-Agent. However, we do not wish to go into this formally, as it exceeds the depth into which we wish to explore.

If we had a verb in the prelexical structure for P-Agent and C-Agent, such that the string was generated by ordinary embedding of sentences into the complement of the verb, then it would be somewhat arbitrary for there to be permitted no more than single embedding of such verbs for a given lexical item. For example we never have the need for the lexical structure of some verb to include 'let Bill cause John to ...'. This limitation could be due to properties of the lexicon so that such a string in the prelexical structure would block, there being no suitable lexical item to fit the string. Yet this gives us superfluous machinery. If we had such a verb we would probably want to generate it with its complement consisting of a non-causative sentence, i.e., just theme, verb, and prepositional phrases, immediately with constituent structure rules. This would automatically set the limitation desired. However, this brings us much closer to assuming we merely have Agent nodes in the prelexical structure generated by constituent structure rules.

Another special limitation there would be on such an underlying verb is the possibility of reflexivization after a causative verb, but not for a member in the clause embedded in the complement of cause.

10) John caused the ball to roll to him.

11) *John caused the ball to roll to himself.

12) *John rolled the ball to him. (toward John)

13) John rolled the ball to himself.

This limitation could be handled by assuming reflexivization occurred after these sentences were embedded. But the restrictions that reflexivization occurs only within one clause suggests that it might ordinarily apply before an embedded sentence is made a part of and indistinguishable from the main clause. Hence we would be setting up our basic verb as necessarily an intrinsic part of the would-be embedded clause. Again this approaches setting up the C-Agent and P-Agent as nodes from the start, generating them directly in the constituent structure.

There is in fact further evidence indicating the nature of these nodes. For example, we have the causative-noncausative pair:

14) John killed Bill.

15) Bill died.

But we also have

16) Bill died from pneumonia.

17) Pneumonia killed Bill.

This may indicate that the from Bill is a possibility other than P-Agent and C-Agent that is generated under Agt. This would explain why we use the causative verb kill if this phrase should be in the subject. In other words, if all we were to do was specify that kill has a subject that is purely Agt then this would explain its subject as C-Agent as well as its subject as the object of the preposition above. Die would be specified as nonAgt. The difference between C-Agent and the prepositional phrase above is in their objects and in the fact that C-Agent must be in the subject. It would be incorrect to say that the time when it is not in the subject is the passive sentence, because passive sentences can readily be formed from sentences in which the subject is nonAgent:

18) The book was lost by Bill.

The causative phrase with from occurs with most verbs, always indicating an abstract cause:

19) The ball rolled off the tape from loss of adhesion.

20) Loss of adhesion rolled the ball off the tape.

21) The metal flowed from its being so hot.

22) *The metal's being so hot flowed it.

23) The ball dropped off the ceiling from loss of adhesion.

24) Loss of adhesion dropped the ball off the ceiling.

25) The weather let us get the work done on time.

26) The decrease in crops forced us to eat more conservatively.

Thus we see that the possibility of having an abstract causative subject has some of the same properties as that of the instrument subject, in that, if we cannot have an Agent subject we cannot have either an instrument subject or the abstract causative subject. We see also that the causative from can be used instead of P-Agent as well as instead of C-Agent for the subject. Also we note as for flow above (and die, previously) that the presence of the causative from in the environment does not depend on there being an Agent in the subject or even being implied. In fact, if an Agent is in the subject we cannot have the causative from in the environment.

27) *John killed Bill from pneumonia.

28) *John forced us to eat more conservatively from decreasing our wages.

29) *John dropped the ball from lessening its adhesion.

If we construe such abstract clauses as instruments, with by, we can have both:

30) John forced us to eat more conservatively by decreasing our wages.

31) John dropped the ball by lessening its adhesion.

Consequently it appears that the causative from is mutually exclusive with the permissive Agent and the causative Agent. We shall then modify the rule in 9.1 to the following:

R-1) $$\text{Agt} \Longrightarrow \left(\begin{Bmatrix}\text{Ø-Agent}\\ \text{P-Agent}\\ \text{FROM NP}\end{Bmatrix}\right)\ (\text{Inst})$$

Note that we can have an instrument phrase with a causative from, but it is necessarily abstract, due to semantic restrictions:

32) Pneumonia killed Bill by choking him.

33) The weather let us get our work done on time by forcing us to stay indoors.

Note also that it is not necessary for the causative from to be in the subject in order for this instrument phrase to appear:

34) Bill died from pneumonia by its choking him.

35) The metal flowed from its being so hot by becoming melted.

Consequently, since the decision to use with or by depends on the concrete or abstract nature of the object of the preposition, we need only specify that the preposition is some nonMotional form, the node Inst can be said to occur with all the types, semantic restrictions being effected by interpretive rules.

The C-Agent, P-Agent, and causative from are then all mutually exclusive with each other. This suggests that the C-Agent and P-Agent might also be considered a prepositional phrase. Then all three would be on the order of some sort of sentence adverb, with the restriction that if the object of the preposition were Animate it must occur only in subject position.

In fact we have seen other evidence to assume that a preposition underlies Agent, and in fact, that this preposition should be from. We noted in section 7.5 that if we added a for-phrase to a sentence, if the subject was derived from a to-phrase then the object of for goes from the subject; on the other hand if the subject is derived from a from-phrase, then the object of for goes to the subject. However, this was complicated by the fact that if a verb is also Agent, then the object of for could also be construed as going to the subject. This fact itself can now be explained by assuming that the C-Agent and P-Agent are objects of a prepositional phrase, namely of from.

Another reason for assuming a preposition such as from in the subject is the fact that the Agent subject always causes the verb to be active, rather than stative. The progressive is always possible. We noted that it is the case that Motional verbs are also active. Since from appears with Motional verbs this may explain why the Agent takes progressive. Note that the instrument, when in the subject, doesn't take the progressive. The instrument phrase has a nonMotional preposition.

36) John is killing Bill with the gun.

37) *The gun is killing Bill.

But when the causative from is in the subject we can have progressive:

38) Pneumonia is killing Bill.

Our paraphrases with from for cause and let also make somewhat more sense now. It might be possible to consider a C-Agent on a still deeper level as having a subject derived from a from-phrase, a Motional verb, and as theme a construction itself consisting of a theme, verb, and prepositional phrases. Similarly, the P-Agent could be considered an elaboration of the same essential structure one inside another. However, if this were in fact the reality we would wonder why in the subject of the larger sentence which represents the phenomena of Agent we could only have the preposition from and not to. Having to would more or less complete the pattern.

It would seem to be the case that the object of to would be the person that became obligated to do something, instead of the person who is making the obligation, the object of the from for the C-Agent. Similarly the object of to might also be the person permitted rather than the P-Agent. In this light we might consider the modals must and may to have subjects in an embedding sentence derived from a to-phrase. Informally 'John must go' might be 'That John go will remain to John', and 'John may go' might be 'That John go will come to John'. That is, if we could specify the distinction between may and must in the same way that we may distinguish between P-Agent and C-Agent, then we would also explain how logically we have MUST NOT = NOT MAY, by the same relation between the Durational and the Motional. Note that if must has a positive preposition in its

subject and is nonMotional then we could understand how have can be used in this sense. This use of have is probably not accidental since have got may be used in its stead, just as for normal have:

39) John has to buy the meat.

40) John has a book.

41) John has got to buy the meat.

42) John's got a book.

Furthermore, in the sense of may which means that the subject is permitted to do something just as we might have a to-phrase in the subject, so if we add a for-phrase the object of the for-phrase goes from the subject.

43) John may go to the movies for a dollar.

44) John may give Bill a book for a dollar.

The last of these is ambiguous in the sense that we may interpret the for to go with the give so that the money goes to John. Also, in order that can occur with must as well as forms with Agt:

45) John must inherit the money or go poor.

We intend to show here that there are considerable possibilities for deeper analysis. However, a formal representation of this will not be attempted.

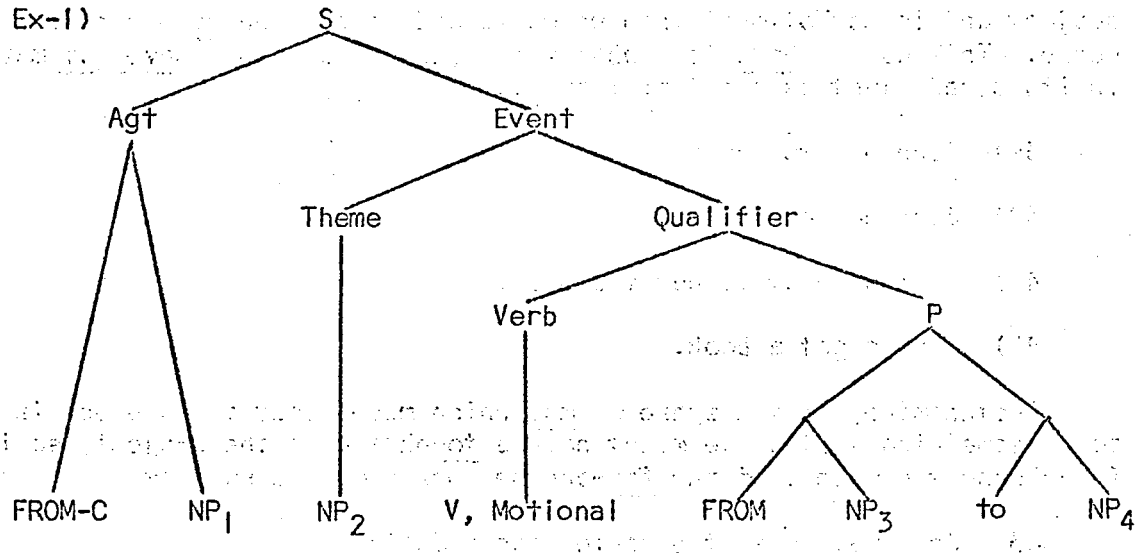
We shall be content to settle with analyzing the Agent subject as being generated from a from-prepositional phrase. If the object is Animate then we have either C-Agent or P-Agent. If abstract then we have the causative from. We must distinguish between the permissive and the causative to do with a verb whose theme is the sentence with the principle verb. Hence we may write as the final form of rule R-1):

R-2) Agt ---> ($\begin{Bmatrix}\text{C-FROM}\\\text{P-FROM}\end{Bmatrix}$ + NP) (Inst)

9.3 Formalization of the Mapping of Prelexical Strings into Syntactic Form for the Agentive Verb

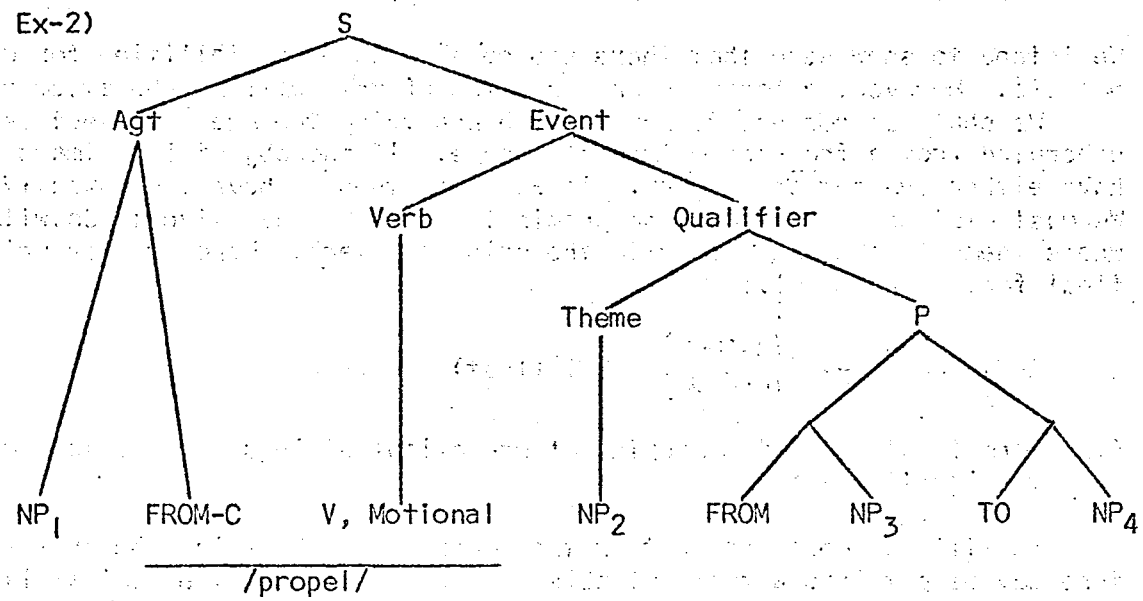
We will now consider whether the formal means by which the prelexical structure may be put into a form suitable for the mapping of the lexical items in it. We have seen in previous sections that the prelexical structure will generate a tree for the mapping of nonAgent forms. We now, for example, can generate a tree as follows, by rules given in 6.1, 9.1, and 4.2.

Ex-1)



If we had generated Agt as above, then we might have a structure that underlies a verb such as propel whose subject is Agent only. Note that we now have the Agent expressed as the object of a preposition and we may say that this preposition is incorporated to the left of the verb. In addition, however, we must get the theme into position after the verb. Again we can consider there to be a reversal between two elements. This time it is between the verb and the theme yielding the structure

Ex-2)



The transformation which effects this is formally

R-1) Theme V

1 2 ===> Ø 2+1

It can be seen that the above transformation is actually a part of the one given previously (6.2 and 7.3), and it is possible to consider it a special case of the previous in which the prepositional phrase (NOT) Prep may be nil, Ø. That

is we may write:

R-2) Ø

Theme V < Qualifier > (NOT) Prep

1 2 3 4 ===> 4 2 1<3 Ø

Once again we state that this postposing of the theme and preposing of some other element (or Ø) costs nothing in a grammar, except the statement that it occurs for a particular word. We consider the above formalizations to be an intrinsic part of all grammars, their form conditioned by the lexical entries and the prelexical structure itself.

Consequently we see that given a lexical entry for propel such as

L-1) /propel/ in env FROM-C V, Motional

we automatically imply that a transformation such as that above has occurred. If it was any other than the correct one, the V will not be directly in front of the preposition and the procedure will block.

We have noted above that the situation in which the subject may be interpreted as an Agent or not is the unmarked situation, because of its commonality. It is also the unmarked situation on the basis of whether or not any rearrangements of the underlying structure has occurred. The initial position in which the Agent node has been generated may be considered as its position in these circumstances, whether or not the theme has metamorphosized with some other element. That is, ordinarily we will consider the Agent node not to move. If it exists it is manifest in the subject position.

When it is present in the conditions we will consider the theme or whatever noun phrase happens to be positioned before the verb to be deleted. There will be the requirements for this deletion that they be identical. This will be a transformation of the sort:

R-3) NP + FROM NP

1 2 3 ===> 1 Ø Ø Boolean Condition: 1 = 3

There may be other formal means of treating this, although I know of no way to decide between them.

We may make all of these transformations optional. If they do not apply the procedure may block.

Thus for a verb such as go we have the simplest of entries, merely

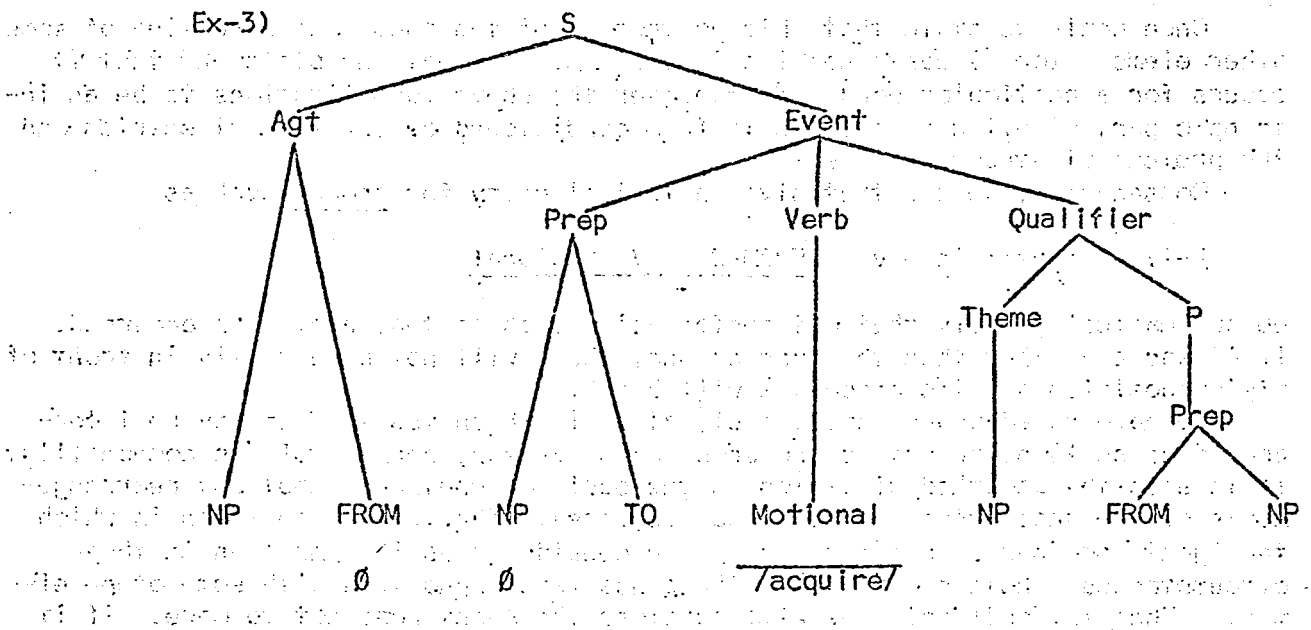
L-2) /go/ in env V, Motional

This will imply that we have the theme unmoved before the verb and that if there is an Agent, again nothing will happen except the deletion rule demanding the identity of the theme and the Agent noun phrase. If they were not equal or the option was taken of not applying the transformation the procedure will block, since the above lexical entry indicates that there is a simple noun in subject position, like the theme.

For words like acquire that have a subject derived from a to-phrase we will have exactly the same procedure. The lexical entry will indicate that a reversal has taken place between the theme and a to-phrase. The Agt may be present

or not. If it isn't nothing happens and the replacement occurs normally. If Agent is present there are the same restrictions that the Agent noun phrase and the noun following it, either the theme or the object of some prepositional phrase, be identical, followed by the appropriate deletions. Then the replacement follows as if the Agent were the object of the preposition in preverbal position, the trees having a similar structure. In such an instance we would have acquire mapped onto the following tree:

Ex-3)



Whenever we have a subject obligatorily Agent as well as being theme or the object of some prelexical prepositional phrase, as for example dodge, whose subject is theme and obligatory Agent, or buy, whose subject is derived from a to-phrase, we write, respectively:

L-3) /dodge/ in env FROM-C V, Motional

L-4) /buy/ in env FROM-C TO V, Motional

Previously we have written C-Agent instead of the preposition. However, we assume that the Agent is a prepositional phrase. The important thing to note is that we do not consider the preposition belonging to the Agent in these circumstances as incorporated, but rather as deleted. When we write FROM-C V, Motional we mean that the subject is Agent only. In these circumstances we consider the causative preposition to be incorporated.

L-4) /inherit/ in env FROM-Ø TO V, Motional

which indicates this fact as an ad hoc restriction for this verb.

An optional rule will lift instrument phrases and the causative from-phrase out of Agt to the front of the sentence:

R-4) FROM NP, Abstract Event
Inst

1 2 ===> 2 1

9.4 Formalization of Optionally Agentive Verbs

For the many cases in which a verb may be used in several different ways we use the convention of parentheses in the lexicon to indicate these options. For example, we do not say that such sentence pairs as

1) John rolled the ball to the house.

2) The ball rolled to the house.

are related by some transformation applying after the lexical are set in, generating the latter as perhaps a subjectless sentence and then preposing the object, ball, to subject position. Rather, we generate prelexical strings, some of which will correspond to one sentence above, some to the other. The fact that both structures can be used for roll is marked as an option in the lexicon by using parentheses. Thus we abbreviate the above possibilities by writing simply:

L-1) /roll/ in env (FROM-C) V, Motional

Without the parentheses we have the form with theme as subject that may or may not be an Agent. With the parentheses we obligatorily incorporate as causative preposition, thereby indicating that the above word may be used as a causative.

This system seems preferable to assuming transformations applying for particular words. Whatever transformations have applied we have considered systematic on a prelexical level, and therefore the only cost is the statement in the lexicon of the possibility that roll has an Agent subject. By this means, we also include in the lexical entry the relevant semantic information about the word, that information which immediately reflects its syntactic use.

The existence of such pairs of words whereby one is causative and the other not, but whereby both have the same sense otherwise, is favored by the possibility to make savings in the lexicon by listing them together. Thus we have such pairs as kill-die, raise-rise, persuade-intend, convince-believe. If convince is precisely a causative of believe, then marking all the properties they have in common by B we have:

L-2) $\left\{\begin{array}{l}\text{/believe/ in env} \\ \\ \text{/convince/ in env} \quad \text{FROM-C}\end{array}\right\}$ V, B

An interesting case of optionality is the following:

L-3)

/sell/ in env $\left(\text{FROM-C} \quad \text{FROM}\right)$ V, Motional Possessional

Sell can be used with the theme as subject, in which case the subject is not Agent. Hence we have parentheses around the FROM-C and the possessional FROM. Thus we have

1) Milk sold well yesterday.

2) Stamps were selling from one person to another.

The use of sell seems to be like that of trade. We wish to point out however that the semantic sense of selling, involving trade by money, is preserved in this sense. There seems to be some difficulty, however, in using this sell in exactly referential sense, as can the more usual sense of sell. We cannot have

3) *That jacket sold from John yesterday to Bill.

Other examples of optionality have been given in the text.

FOOTNOTES

[1]We shall assume throughout familiarity with the concept of generative grammar and the terms used relevant to it, e.g., transformation, constituent structure, rewrite rule, etc. For discussions of and within generative grammar see the volumes noted below. We shall also assume informal knowledge of the traditional term noun, noun phrase, subject, verb, object, sentence, etc., and will use them informally throughout.

[2]Katz, J. J. and J. A. Fodor, "The Structure of a Semantic Theory" in Fodor and Katz, The Structure of Language, Readings in the Philosophy of Language, (Englewood Cliffs, New Jersey, Prentice Hall, 1964), p. 493.

[3]The notions of 'deep' and 'surface structure' are discussed in Chomsky, Noam, Aspects of the Theory of Syntax, (Cambridge, M. I. T., 1965).

[4]Chomsky, Noam, Syntactic Structures (Mouton, 1962), p. 94.

[5]Chomsky, Noam, Aspects of the Theory of Syntax, (Cambridge, M. I. T., 1965), p. 84.

[6]Ibid., p. 162.

[7]For discussion of particles used as prepositions and adverbs, see Fraser, James B., An Examination of the Verb-Particle Construction in English, Doctoral Thesis, M. I. T., June, 1965.

[8]In some languages, such as German, Chinese, and Japanese, certain noun phrases may be manifested at the head of the sentence. Such a noun phrase has been called the theme. For the construction in Japanese, see Kuroda, S. Y.

[9]Rosenbaum, Peter S., The Grammar of English Complement Constructions, Doctoral Thesis, M. I. T., June, 1965.

[10]Hall, Barbara C., Subject and Object in Modern English, Doctoral Thesis, M. I. T., June, 1965.

The following volumes have been used as helpful sources for words and constructions in English:

[11]Householder, F. W., Jr., and P. H. Matthews, Some Classes of Verbs in English, Indiana Research Project, Indiana University, June, 1964.

[12]Jespersen, Otto, A Modern English Grammar on Historical Principles, London, Georger Allen and Unwin, Ltd., 1909-1949.

[13]Long, Ralph B., The Sentence and Its Parts: A Grammar of Contemporary English, Chicago, University of Chicago Press, 1961.

[14]For this observation I am indebted to Professor Edward Klima.

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