

Types of Lexical Information*

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0. The Lexicon.

A lexicon viewed as part of the apparatus of a generative grammar must make accessible to its users, for each lexical item,

- (i) the nature of the deep-structure syntactic environments into which the item may be inserted;
- (ii) the properties of the item to which the rules of grammar are sensitive;
- (iii) for an item that can be used as a 'predicate', the number of 'arguments' that it conceptually requires;
- (iv) the role(s) which each argument plays in the situation which the item, as predicate, can be used to indicate;
- (v) the presuppositions or 'happiness conditions' for the use of the item, the conditions which must be satisfied in order for the item to be used 'aptly';
- (vi) the nature of the conceptual or morphological relatedness of the item to other items in the same language;
- (vii) its meaning; and
- (viii) the phonological or orthographic shapes which the item assumes under given grammatical conditions.

In this survey I shall have nothing to say about (viii), and nothing very reliable to say about (vii).

1. The Speech Act.

I begin by assuming that the semantic description of lexical items capable of functioning as predicates can be expressed as

complex statements about properties of, changes in, or relations between entities of the following two sorts: (a) the entities that can serve as 'arguments' in the 'predicate'-'argument' constructions in which the given lexical item can figure, and (b) various aspects of the speech act itself. In this section I shall suggest the concepts and terms that appear to be necessary for identifying the role of the speech act in semantic theory.

The act of producing a linguistic utterance in a particular situation involves a speaker, an addressee, and a message. It is an act, furthermore, which occurs within a specific time-span, and it is one in which the participants are situated in particular places. Now the time during which a speech act is produced is a span, the participants in the speech act may be moving about during this span, and even the identity of the participants may change during the speech act; but for most purposes the participant-identity and the time space coordinates of the speech act can be thought of as fixed points. In accepting this fiction, I commit myself to regarding sentences like (1) to (3) as somewhat pathological:

- (1) I'M NOT TALKING TO YOU, I'M TALKING TO YOU.
- (2) I WANT YOU TO TURN THE CORNER...RIGHT...HERE!
- (3) THIS WON'T TAKE LONG, DID IT?

The producer of a speech act will be called the locutionary source (LS), the addressee will be referred to as the locutionary target (LT).¹ The temporal and spatial coordinates of the speech

¹I have borrowed these terms from philosopher Richard Garner, to whom I am also indebted for a number of suggestions on the content and phrasing of several sections of this paper.

act are the time of the locutionary act (TLA), the place of the locutionary source (PLS) and the place of the locutionary target (PLT).

There are certain verbs in English which refer to instances of speech acts other than the one which is being performed (e.g. SAY), and I shall refer to these as locutionary verbs. It is necessary to mention locutionary verbs now because we shall find that linguistic theory requires a distinction between the 'ultimate' speech act and speech acts described in a sentence. Thus the linguistic description of some verbs refers to either the LS or the 'subject' of a locutionary verbs,² and these

²The disjunction in this statement may be unnecessary if we accept John R. Ross's arguments that declarative sentences have phonetically unrealized embedding sentences representable as something like I DECLARE TO YOU THAT ... On Ross's view every sentence contains at least one locutionary verb, so that the difference we are after is a difference between references to the 'next higher' locutionary verb and reference to the 'highest' locutionary verbs. See John R. Ross, "On declarative sentences", to appear in Readings in English Transformational Grammar, Ginn and Blaisdell, 1968.

situations must be distinguished from those in which the reference is to the LS alone.

Words in English whose semantic descriptions require reference to some aspect of the locutionary act include HERE, THIS, NOW, TODAY, COME and KNOW. The word COME,³ for example, can

³See Charles J. Fillmore, "Deictic categories in the semantics of 'COME'," Foundations of Language, 1966, 2.219-227.

refer to movement toward either the PLA or the PLT at either TLA or the time-of-focus identified in the sentence. Thus in (4)

(4) HE SAID THAT SHE WOULD COME TO THE OFFICE
THURSDAY MORNING

it is understood that the office is the location of the LS or the LT either at TLA or on 'Thursday morning'. Uses of the verb

KNOW presuppose the factuality of the proposition represented by a following THAT-clause. Thus, in sentence (5)

(5) SHE KNOWS THAT HER BROTHER HAS RESIGNED

it is understood that the LS at TLA presupposes the factuality of her brother's resignation.

Some verbs make reference either to the subject of the 'next locutionary verb up', or to the LS just in case the sentence contains no explicit locutionary verb. If we are to believe Ross (see footnote 2), the verb LURK requires of its subject that it be distinct from the subject of the first commanding locutionary verb. It may look, on just seeing sentences (6)-(7),

(6) HE WAS LURKING OUTSIDE HER WINDOW

(7) *I WAS LURKING OUTSIDE HER WINDOW

that what is required is simply non-identity with LS; but this is shown not to be so because of the acceptability of sentence (8)

(8) SHE SAID I HAD BEEN LURKING OUTSIDE HER WINDOW.

From these observations it follows that sentence (9) is ambiguous on whether or not the two pronouns HE are coreferential, but sentence (10) requires the two HE's to be different.

(9) HE SAID HE HAD BEEN LOITERING OUTSIDE HER WINDOW

(10) HE SAID HE HAD BEEN LURKING OUTSIDE HER WINDOW

There are apparently many speakers of English whose use of LURK fails to match the observations I have just reviewed; for the remainder, then, this verb provides a polite example of the distinction we are after.

There is, then, a distinction in semantic descriptions of lexical items between references to properties of the higher clauses that contain them, on the one hand, and to features of or participants in the speech act itself on the other hand. The former situation falls within the area of 'deep structure constraints' (see section 9 below), but the latter requires the

availability of concepts related to the speech act.⁴

⁴There is an additional use of 'deictic' words, and that is this: in a third person narrative, one can express one's 'identification' with one of the characters in the narrative by letting that character be the focus of words that are primarily appropriate to hic-nunc-ego. Thus we may find in an exclusively third-person narrative a passage like (i)

- (i) here was where Francis had always hoped to be,
and today was to mark for him the beginning of
a new life

in which the words HERE and TODAY refer to the place and time focused on in the narrative, not to the place and time associated with the author's act of communication. In what might be referred to as the 'displaced ego' use of deictic words, the author has shown us that he has for the moment assumed Francis's point of view.

I propose that a rather subtle test of psycho-sexual identity can be devised in the form of a story in which two characters, one male and one female, do a lot of cross-visiting, but in their other activities do nothing that makes one of them clearly more lovable than the other. The subject's task is to listen to the story and then re-tell it in his own words. The writer of the original story must not use the words COME and GO; but if the subject, in retelling the story, states, say, that BILL CAME TO MARY'S HOUSE (using CAME rather than WENT), he reveals that he is experiencing the story from Mary's point of view.

2. Elementary Semantic Properties of Verbs.

I assume that what we might call the 'basic sense' of a word is typically expressible as a set of 'components', and that while some of these components may be idiosyncratic to particular words, others are common to possibly quite large classes of words. The components themselves may be complex, since they may be required to characterize events or situations that are themselves complex, but the ultimate terms of a semantic description I take to be such presumably biologically given notions as identity, time, space, body, movement, territory, life, fear, etc., as well as undefined terms that directly

identify aspects of or objects in the cultural and physical universe in which human beings live. In the paragraphs which follow, we shall sample some of the elementary semantic properties of verbs, in particular those relating to time, space, movement, and 'will'.

Some verbs refer to activities viewed as necessarily changing in time, others do not; this contrast is frequently referred to with the terms 'momentary' and 'continuative' respectively. SLEEP is a continuative verb, WAKE UP is a momentary verb. A continuing activity, or state, necessarily occupies a span of time, and thus it makes sense to qualify a continuative verb with a complement which represents (for example) one or both of the end-points of such a span, or a distance-measure of the span. Thus while the sentences in (11) make sense, those in (12) do not.

(11) SHE SLEPT { FOR THREE DAYS
UNTIL FRIDAY }

(12) *SHE WOKE UP { FOR THREE DAYS
UNTIL FRIDAY }

On the other hand, the negation of a momentary verb can identify a continuing state, and, in that case, can be continuative. Thus the sentences in (13) make sense.

(13) SHE DIDN'T WAKE UP { FOR THREE DAYS
UNTIL FRIDAY }

Momentary verbs that represent acts that are repeatable may be understood 'iteratively'. WAKE UP is not iterative, as is shown by example (12). KICK, however, can be understood iteratively, as we see in (14)

(14) HE KICKED THE DOG UNTIL 5 O'CLOCK.

Momentary verbs that are also 'change-of-state' verbs cannot be used iteratively when a specific object is involved, as we see in example (15),

(15) *HE BROKE THE VASE UNTIL 5 O'CLOCK

but if the same activity can be directed to an unspecified number of objects, then change-of-state verbs can be understood iteratively, too, as we see in (16)

(16) HE BROKE VASES UNTIL 5 O'CLOCK.

It appears, in short, that a lexico-semantic theory will have to deal with those aspects of the meanings of verbs which relate to the occurrence in time of the situations which they identify.

Turning to other types of semantic properties, we note that verbs like HIT and TOUCH, though they differ in that the former is momentary while the latter may be either momentary or continuative, have in common the notion of surface-contact, a property they share with KNOCK, STRIKE, CONTACT, IMPINGE, SMITE, and many others. They differ in that the impact of the described acts is apparently gentler for TOUCH than for HIT.

The verbs LEAP and JUMP agree in implying a momentary change in vertical position (one has to leave the ground in order to perform either of these actions), but they differ in that LEAP seems to imply the sense of a change in horizontal position, too. SLIDE, like LEAP, refers to position-changes along a surface, but differs from LEAP in not implying movement away from the surface. SCUTTLE, like SLIDE, suggests movement across a surface, but with the assumption that contact with the surface is interrupted and with the further sense that the motion is rapid. DART is like SCUTTLE in referring to rapid sudden motion, but fails to share with it any reference to a surface. Verbs of motion, in short, may be described by associating with them properties relating to direction, speed, gravity, surface, etc.⁵

⁵Possibly the richest source of insights into verbs of motion is the recent output of Jeffrey S. Gruber. See his dissertation, Studies in lexical relations, M.I.T., (1965, unpublished); "Look and see", Language (1967), Vol. 43, No. 4.937-947; and Functions of the lexicon in formal descriptive grammars (1967), Technical Memorandum TM-3770/000/00, System Development Corporation, Santa Monica, California.

Sometimes a verb has a built-in reference to the outcome of an activity. Conceptually it appears that the actor engages in some activity and though the activity may be directed toward some specific outcome it is the activity itself which (by chance) leads to that outcome. These have been called 'achievement verbs'. One of the tests of an achievement verb is that the modal MAY is usable in construction with such a verb only in its epistemic or predictive sense, not in its pragmatic or permission-granting sense. This is apparently because of the 'by-chance' relationship between activity and the outcome: one doesn't grant someone permission to have good luck. Hence we find (17) and (19) understandable only in the epistemic sense of MAY, while (18) and (20) can be understood in either the epistemic or the pragmatic sense.

(17) HE MAY ACHIEVE HIS GOAL

(18) HE MAY TRY TO ACHIEVE HIS GOAL

(19) HE MAY FIND THE EGGS

(20) HE MAY LOOK FOR THE EGGS

A final general property of verbs that we may point out in this section has to do with the intentional or non-intentional involvement of one of the participants in the events described by use of the verb. If we compare (21) and (22)

(21) JOHN MEANS X BY Y

(22) JOHN UNDERSTANDS X BY Y

we note that in (21), but not in (22), the association between x and y is intentional on John's part. The word MEAN can be used in the sense which UNDERSTAND has in (22), but in that case the sentence is differently constructed. (23) is a paraphrase of (22).

(23) Y MEANS X TO JOHN.

3. Predicate Structure.

I assume that most of the 'content words' in a language

can be characterized in the lexicon in terms of their use as predicates. I take this to be true of nouns, verbs, adjectives,⁶

⁶In other words, I accept the part-of-speech identities argued by George Lakoff in Appendix A of On the nature of syntactic irregularity (1965), Report No. NSF-16, Computation Laboratory of Harvard University; as well as the extension of such identities to 'nouns' proposed by Emmon Bach in "Nouns and noun phrases", (1968), to appear in Universals in Linguistic Theory, Holt, Rinehart and Winston (editors, E. Bach and R. Harms).

and also a great many conjunctions. Thus a sentence like (24)

(24) HARRY LIVES AT HOME BECAUSE HE LOVES HIS MOTHER

is evaluated as true or false depending not only on the joint truth-values of the two clauses which flank BECAUSE, but on the truth or falsity of the 'causal' connection between the two situations named by these clauses. The sentence can be interpreted as having BECAUSE as its main predicate, a predicate which takes two clauses as its arguments and which is used to assert a 'causal' or 'logical' connection between the two clauses.

As predicates, words can be described first of all according to the number of 'arguments' that they take. Thus the verbs ASCEND and LIFT are both motion verbs, they are both used to describe motion upward, but they differ in that while ASCEND is used only of the object that moves upward, LIFT requires conceptually two objects, one the object that is moving upward, the other the object or being that is causing it to move upward. Another way of stating this is: ASCEND is a one-argument predicate, LIFT is a two-argument predicate.⁷

⁷Of course, as motion verbs each of them may take time and space 'complements' as well, as is seen in THE BALLOONS ASCENDED TO THE RAFTERS JUST AFTER THE SPEECH ENDED. Since in general the nature of the time and space complements is predictable from properties of the type discussed in section 2, we may permit ourselves to ignore such matters while discussing the typing of predicates on the basis of the number of arguments they 'take'.

Many verbs are flexible in the number of arguments they take. This is true, for example, of some motion verbs, like MOVE and ROTATE, and many change-of-state verbs, like OPEN and BREAK. MOVE, as can be seen in sentences (25)-(27), can occur with one, two, or three arguments.

(25) THE ROCK MOVED

(26) THE WIND MOVED THE ROCK

(27) I MOVED THE ROCK (WITH A STICK)

Mention of the object which moves is required in all three uses; the two-argument uses additionally identify either the physical force or object which is directly responsible, or the animate being which is indirectly responsible, for the activity of moving; and the three-argument use identified all three of these (as in (27) with the parenthesized phrase included). The surface-contact verbs HIT, TOUCH, STRIKE, etc., require conceptually at least two arguments in all of their uses, namely the objects which come into contact, but they accept as a third argument the animate being that is responsible for the coming-into-contact.

The verbs ROB and STEAL conceptually require three arguments, namely those identifiable as the culprit, the loser, and the loot. The words BUY and SELL are each 4-argument predicates, the arguments representing the one who receives the goods or services, the one who provides the goods and services, the goods and services themselves, and the sum of money that changes hands.

I have referred in this section to the conceptually required number of arguments. I am distinguishing this from the number of arguments that must be explicitly identified in English sentences. The various ways in which English grammar provides for the omission or suppression of explicitly identified arguments is the subject of section 5. To say that conceptually ROB or BUY are 3- or 4-argument predicates respectively is to acknowledge that even when we say merely (28)

(28) SHE ROBBED THE BANK

we understand that she took something out of the bank, and when

we say (29)

(29) SHE BOUGHT IT

truthfully, it is necessarily the case that there was somebody who sold it to her and that a sum of money was exchanged.

4. Case Structure.

In the preceding section I identified the separate arguments associated with the verb ROB by referring to their 'roles' as 'culprit', 'loser', and 'loot'; in a similar way, I might have identified the three arguments associated with the verb CRITICIZE as 'critic', 'offender' and 'offense'. It seems to me, however, that this sort of detail is unnecessary, and that what we need are abstractions from these more specific roles, abstractions which will allow us to recognize that certain elementary role notions recur in many situations, and which will allow us to acknowledge that differences in detail between partly similar roles are due to differences in the meanings of the associated verbs. Thus we can identify the culprit of ROB and the critic of CRITICIZE with the more abstract role of Agent, and interpret the term Agent as referring, wherever it occurs, as the animate instigator of events referred to by the associated verb. Although there are many substantive difficulties in determining the role structure of given expressions, in general it seems to me that for the predicates provided in natural languages, the roles that their arguments play are taken from an inventory of role types fixed by grammatical theory. Since the most readily available terms for these roles are found in the literature of case theory, I have taken to referring to the roles as case relationships, or simple cases. The combination of cases that might be associated with a given predicate is the case structure of that predicate.

In addition to the apparently quite complex collection of complements that identify the limits and extents in space and

time that are required by verbs of motion, location, duration, etc., the case notions that are most relevant to the subclassification of verb types include the following:

Agent (A), the instigator of the event

Counter-Agent (C), the force or resistance against
which the action is carried out

Object (O), the entity that moves or changes or
whose position or existence is in consideration

Result (R), the entity that comes into existence as
a result of the action

Instrument (I), the stimulus or immediate physical
cause of an event

Source (S), the place to which something is directed

Experiencer (E), the entity which receives or accepts
or experiences or undergoes the effect of an
action (earlier called by me 'Dative').

It appears that there is sometimes a one-many relationship between an argument to a predicate and the roles that are associated with it. This can be phrased by saying either that some arguments simultaneously serve in more than one role, or that in some situations the arguments in different roles must (or may) be identical.

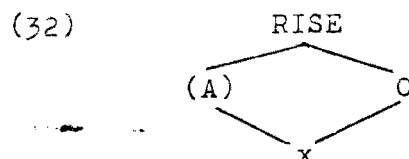
Thus verbs like RISE and MOVE can be used intransitively, that is with one noun phrase complement; the complement may refer just to the thing which is moving upward, or it may simultaneously refer to the being responsible for such motion. Thus in speaking simply of the upward motion of smoke we can say (30),

(30) THE SMOKE ROSE

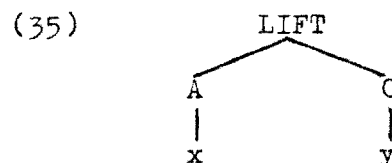
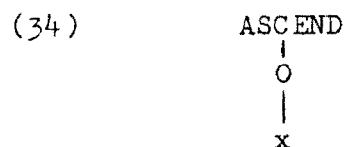
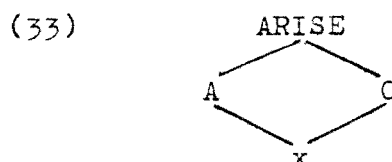
and in speaking of John's getting up on his own power, we can say (31)

(31) JOHN ROSE

The case structure of RISE, then, might be represented diagrammatically as (32).



The fact that there are two case lines connecting RISE with its one argument, and that the line labeled A has its case label in parentheses, reflect the fact that the argument can serve in just one of these roles (O) or simultaneously in both (A and O). RISE differs from ARISE in the optionality of A; it differs from ASCEND in having an 'A' line at all, and they all differ from LIFT in that the latter requires two arguments.⁸ Thus (33)-(35)

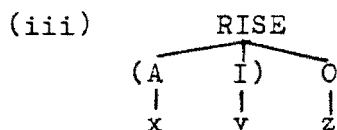


⁸In truth, however, LIFT also requires conceptually the notion of Instrument. That is, lifting requires the use of something (perhaps the Agent's hand) to make something go up. It is conceivable that the basic case structure of ARISE and LIFT are identical, with grammatical requirements on identity and deletion, accounting for their differences. Thus the two are shown

in (i) and (ii).



For ARISE, however, it is required that $z = y = z$, and hence only one noun will show up. The meaning expressed by JOHN AROSE is that John willed his getting up, that he used his own body (i.e., its muscles) in getting up, and that it was his body that rose. For LIFT, however, there may be identities between x and z , resulting in a sentence like JOHN LIFTED HIMSELF, or there may be identities between y and z , resulting in a sentence like JOHN LIFTED HIS FINGER. RISE, then, must be described as (iii)



where the identity requirements of ARISE obtain just in case x and y are present.

Frequently a linguistically codable event is one which in fact allows more than one individual to be actively or agentively involved. In any given linguistic expression of such an event, however, the Agent role can only be associated with one of these. In such pairs as BUY and SELL or TEACH and LEARN we have a Source (of goods or knowledge) and a Goal. When the Source is simultaneously the Agent, one uses SELL and TEACH; when the Goal is simultaneously the Agent, we use BUY and LEARN.

It is not true, in other words, that BUY and SELL, TEACH and LEARN are simply synonymous verbs that differ from each other in the order in which the arguments are mentioned.⁹ There is

⁹This has, of course, been suggested in a great many writings on semantic theory; most recently, perhaps, in the exchanges between J. F. Staal and Yehoshua Bar-Hillel in Foundations of Language, 1967 and 1968.

synonymy in the basic meanings of the verbs (as descriptions of events), but a fact that might be overlooked is that each of these verbs emphasizes the contribution to the event of one of the participants. Since the roles are different, this difference is reflected in the ways in which the actions of different participants in the same event can be qualified. This we can say (36)

(36) HE BOUGHT IT WITH SILVER MONEY

but not (37)

(37) *HE SOLD IT WITH SILVER MONEY.

Similarly, the adverbs in (38) and (39) do not further describe the activity as a whole, but only one person's end of it.

(38) HE SELLS EGGS VERY SKILFULLY

(39) HE BUYS EGGS VERY SKILFULLY.

5. Surface Realization of Arguments.

I suggested in the previous section that the conceptually necessary arguments to a predicate cannot always be matched on a one-to-one basis with the 'cases' that are also associated with the same predicate. It may now be pointed out that there is also no exact correspondence between either of these and the number of obligatorily present syntactic constituents in expressions containing the predicates in question. BUY, as we have seen, is a 4-argument (but 5-case) predicate which can occur in syntactically complete sentences containing 2, 3, or 4 noun phrases. Thus, (40),

(40) HE BOUGHT IT (FROM ME) (FOR FOUR DOLLARS)

in which optionally present segments are marked off by parentheses.

The verb BLAME has associated with it 3 roles, the accuser (Source), the presumed offender (Goal), and the offense (Object). Expressions with this verb can contain reference to all three, as in (41), just two, as in (42) and (43), or only one, as in (44).

(41) THE BOYS BLAMED THE GIRLS FOR THE MESS

- (42) THE BOYS BLAMED THE GIRLS
- (43) THE GIRLS WERE BLAMED FOR THE MESS
- (44) THE GIRLS WERE BLAMED

No sentence with BLAME, however, can mention only the accuser, only the offense, or just the accuser and the offense. See (45)-(47).

- (45) *THE BOYS BLAMED
- (46) *THE MESS WAS BLAMED
- (47) *THE BOYS BLAMED (FOR) THE MESS

An examination of (41)-(47) reveals that the case realized here as THE GIRLS is obligatory in all expressions containing this verb, and, importantly, that there are two distinct situations in which the speaker may be silent about one of the other arguments. I take sentence (43) as a syntactically complete sentence, in the sense that it can appropriately initiate a discourse (as long as the addressee knows who the girls are and what the mess is). In this case the speaker is merely being indefinite or non-committal about the identity of the accuser. I take sentence (42), however, as one which cannot initiate a conversation and one which is usable only in a context in which the addressee is in a position to know what it is that the girls are being blamed for. Another way of saying this is that (43) is a paraphrase of (43') and (42) is a paraphrase of (42').

(42') THE BOYS BLAMED THE GIRLS FOR IT.

(43') THE GIRLS WERE BLAMED FOR THE MESS BY SOMEONE.

This distinction can be further illustrated with uses of HIT. In (48), a paraphrase of (48'), the speaker is merely being indefinite about the implement he used:

(48) I HIT THE DOG

(48') I HIT THE DOG WITH SOMETHING.

In (49), the paraphrase of (49'), the speaker expects the identity of the 'target' (Goal) to be already known by the addressee.

(49) THE ARROW HIT

(49') THE ARROW HIT IT

The two situations correspond, in other words, to definite and indefinite pronominalization.

Sometimes an argument is obligatorily left out of the surface structure because it is subsumed as a part of the meaning of the predicate. This situation has been discussed in great detail by Jeffrey Gruber (see footnote 5 above) under the label 'incorporation'. An example of a verb with an 'incorporated' Object is DINE, which is conceptually the same as EAT DINNER but which does not tolerate a direct object.¹⁰

¹⁰One can, however, indicate the content of the meal in question, as in an expression like HE DINED ON RAISINS.

The verb DOFF has an incorporated Source. If I DOFF something, I remove it from my head, but there is no way of expressing the Source when this verb is used. There is no such sentence as (50)

(50) *HE DOFFED HIS HAT FROM HIS BALDING HEAD.

There are other verbs that identify events which typically involve an entity of a fairly specific sort, so that to fail to mention the entity is to be understood as intending the usual situation. It is usually clear that an act of slapping is done with open hands, an act of kicking with legs and/or feet, an act of kissing with both lips; and the target of an act of spanking seldom needs to be made explicit. For these verbs, however, if the usually omitted item needs to be delimited or qualified in some way, the entity can be mentioned. Hence we find the modified noun phrase acceptable in such sentences as (51)-(53)

(51) SHE SLAPPED ME WITH HER LEFT HAND¹¹

(52) SHE KICKED ME WITH HER BARE FOOT

(53) SHE KISSED ME WITH CHOCOLATE-SMEARED LIPS

¹¹At least in the case of SLAP, the action can be carried

out with objects other than the usual one. Thus it is perfectly acceptable to say SHE SLAPPED ME WITH A FISH.

Lexical entries for predicate words, as we have seen in this section, should represent information of the following kinds: (1) for certain predicates the nature of one or more of the arguments is taken as part of our understanding of the predicate word: for some of these the argument cannot be given any linguistic expression whatever; for others the argument is linguistically identified only if qualified or quantified in some not fully expected way; (2) for certain predicates, silence ('zero') can replace one of the argument-expressions just in case the speaker wishes to be indefinite or non-committal about the identity of the argument; and (3) for certain predicates, silence can replace one of the argument-expressions just in case the LS believes that the identity of the argument is already known by the LT.

6. Meaning vs. Presupposition.

Sentences in natural language are used for asking questions, giving commands, making assertions, expressing feelings, etc. In this section I shall deal with a distinction between the presuppositional aspect of the semantic structure of a predicate on the one hand and the 'meaning' proper of the predicate on the other hand. We may identify the presuppositions of a sentence as those conditions which must be satisfied before the sentence can be used in any of the functions just mentioned. Thus the sentence identified as (54)

(54) PLEASE OPEN THE DOOR

can be used as a command only if the LT is in a position to know what door has been mentioned and only if that door is not, at TLA, open.¹² The test that the existence and specificity of a

¹²I am only dealing here with those presuppositions which are relatable to the content of the utterance. It is also true,

of course, that (54) can be used appropriately as a command only if the LT understands English, is believed by the LS to be awake, is not totally paralyzed, etc. These matters have more to do with questions of 'good faith' in speech communication than with information that is to be understood as knowledge about individual lexical items.

door and its being in a closed state make up the presuppositions of (54) rather than part of its meaning is that under negation the sentence is used to give quite different instructions, yet the presuppositional conditions are unaffected.

(54') PLEASE DON'T OPEN THE DOOR

The presuppositions about the existence and specificity of the door relate to the use of the definite article and have been much discussed in the philosophical literature on referring.¹³

¹³On referring see "On referring", by P. F. Strawson, Mind (1950) 59.320-344.

The presupposition about the closed state of the door is a property of the verb OPEN.

Presuppositions of sentences may be associated with grammatical constructions independent of specific predicate words (such as those associated with the word even or with the counterfactual-conditional construction¹⁴), but I shall mention here

¹⁴For some examples see my mistitled paper, "Entailment rules in a semantic theory", Project on Linguistic Analysis Report No. 10, 1965.

only those that must be identified with the semantic structure of predicate words. If we limit our considerations to sentences which can be used for making assertions, we can separate the basic meaning of a predicate from its presuppositions, by describing the former as being relevant to determining whether

as an assertion it is true or false, the latter as being relevant to determining whether the sentence is capable of being an assertion in the first place. If the presuppositional conditions are not satisfied, the sentence is simply not apt; only if these conditions are satisfied can a sentence be appropriately used for asking a question, issuing a command, making an apology, pronouncing a moral or aesthetic judgment, or, in the cases we shall consider, making an assertion.

Let us illustrate the distinction we are after with the verb PROVE in construction with two THAT-clauses. Consider sentence (55)

- (55) THAT HARRY IS STILL LIVING WITH HIS MOTHER
PROVES THAT HE IS A BAD MARRIAGE RISK.

It is apparent that if I were to say (55) about somebody who is an orphan, nobody would say that I was speaking falsely, only that I was speaking inappropriately. If PROVE has a THAT-clause subject and a THAT-clause object, we say that the truth of the first THAT-clause is presupposed, and that the verb is used to assert a causal or logical connection between the two clauses and thus (when used affirmatively) to imply the truth of the second clause. That this separation is correct may be seen by replacing PROVE in (55) by DOESN'T PROVE and noting that the presuppositional aspects of (55), concerning the truth of the first THAT-clause, are unaffected by the change.

It is difficult to find pairs of words in which the presuppositional content of one is the meaning content of the other, but a fairly close approximation to this situation is found in the pair of verbs ACCUSE and CRITICIZE. The words differ from each other on other grounds, in that ACCUSE is capable of being a 'performative', while CRITICIZE is not; and CRITICIZE, unlike ACCUSE, is capable of being used in senses where no negative evaluation is intended. In sentences (56) and (57) we are using ACCUSE in a non-performative sense and we are using CRITICIZE as a 3-argument predicate in a 'negative-

evaluative' sense.

(56) HARRY ACCUSED MARY OF WRITING THE EDITORIAL

(57) HARRY CRITICIZED MARY FOR WRITING THE EDITORIAL

I would say that a speaker who utters (56) presupposes that Harry regarded the editorial-writing activity as 'bad' and asserts that Harry claimed that Mary was the one who did it; while a speaker who utters (57) presupposes that Harry regarded Mary as the writer of the editorial and asserts that Harry claimed the editorial-writing behavior or its result as being 'bad'. The content of the presupposition in each one of these verbs shows up in the assertive meaning of the other.

Certain apparent counter-examples to the claims I have been making about presuppositions can be interpreted as 'semi-quotations', I believe. Some utterances are to be thought of as comments on the appropriate use of words. Uses of the verb CHASE presuppose that the entity identified as the direct object is moving fast. Uses of the verb ESCAPE presuppose that the entity identified by the subject noun phrase was contained somewhere 'by force' previous to the time of focus. These presuppositions, as expected, are unaffected by sentence negation.

(58) THE DOG { CHASED
DIDN'T CHASE } THE CAT

(59) HE { ESCAPED
DIDN'T ESCAPE } FROM THE TOWER

It seems to me that sentences like (60) and (61) are partly comments on the appropriateness of the words CHASE and ESCAPE for the situations being described. These are sentences that would most naturally be used in contexts in which the word CHASE or ESCAPE had just been uttered.

(60) I DIDN'T 'CHASE' THE THIEF; AS IT HAPPENED, HE
COULDN'T GET HIS CAR STARTED

(61) I DIDN'T 'ESCAPE' FROM THE PRISON; THEY RELEASED
ME.

It is important to realize that the difference between meaning and presupposition is a difference that is not merely to be found in the typical predicate words known as verbs and adjectives. The difference is found in predicatively used nouns as well. In the best-known meaning of BACHELOR, for example, the negation-test reveals that only the property of 'having never been married' is part of the meaning proper. Uses of this word (as predicate) presuppose that the entities being described are human, male and adult. We know that this is so because sentence (62)

(62) THAT PERSON IS NOT A BACHELOR

is only used as a claim that the person is or has been married, never as a claim that the person is a female or a child. That is, it is simply not appropriate to use (62), or its non-negative counterpart, when speaking of anyone who is not a human, male adult.

7. Evaluative and Orientative Features.

Jerrold J. Katz¹⁵ and Manfred Bierwisch¹⁶ have proposed

¹⁵Jerrold J. Katz, "Semantic theory and the meaning of 'good'" (1964), Journal of Philosophy 61.

¹⁶Manfred Bierwisch, "Some semantic universals of German adjectivals" (1967), Foundations of Language 3.1-36.

semantic features which treat the relation between objects and the human beings that deal with these objects. Katz has treated the semantic properties of words that relate to the ways in which objects and events are evaluated, and Bierwisch has proposed ways of associating with words information concerning the ways in which the objects they describe are conceptually related to spatial aspects of the language-user's world.

For certain nouns the evaluative information is determinable in a fairly straightforward way from their definitions. This is most clearly true in the case of agentive and instrumental nouns. Many definitions of nouns contain a component which expresses a typical function of the entity the noun can refer to. Thus the lexical entry for PILOT will contain an expression something like (63)

(63) profession: A of [V O Z]

where V is 'navigate', with the presupposition that O is an air vessel

and the lexical entry for KNIFE will contain such an expression as (64)

(64) use: I of [V O I A]

where V is 'cut', with the presupposition that O is a physical object.

For such nouns I assume that the evaluative feature can be automatically specified from the function-identifying part of a definition. A noun which refers to a 'typical' (e.g., 'professional') Agent in an activity is evaluated according to whether the Agent conducts this activity **skillfully**; a noun which names a typical Instrument in an activity is evaluated according to whether the thing permits the activity to be performed easily. In these ways we can make intelligible our ability to understand expressions like A GOOD PILOT, A GOOD PIANIST, A GOOD LIAR, A GOOD KNIFE, A GOOD PENCIL, A GOOD LOCK, etc.

For nouns whose definitions do not identify them as typical Agents or Instruments, the evaluative feature apparently needs to be specified separately. Thus FOOD is probably in part defined as (65)

(65) function: O of [V O A]

where V is 'eat'

Food is evaluated according to properties (namely nutrition and palatability) which are not immediately derivable from the definition of FOOD, and this fact apparently needs to be stated

separately for this item. To call something A GOOD PHOTOGRAPH is to evaluate it in terms of its clarity or its ability to elicit positive esthetic responses in the viewer, but neither of these notions can be directly derived from the definition of PHOTOGRAPH. Here, too, the evaluative feature needs to be stated independently of the definition of the word.

The question a lexicographer must face is whether these matters have to do with what one knows, as a speaker of a language, about the words in that language, or what one knows, as a member of a culture, about the objects, beliefs and practices of that culture. Do we know about books that they are used in our culture to reveal information or elicit certain kinds of esthetic appreciation, or do we know about the word BOOK that it contains evaluative features that allow us to interpret the phrase A GOOD BOOK? Do we understand the expression GOOD WATER (as water that is safe for drinking) because its semantic description has set aside that one use of water as the use in terms of which water is to be generally evaluated, or because we know that for most purposes (e.g., watering the grass, bathing) any kind of water will do, but for drinking purposes some water is acceptable and some is not? These are serious questions, but we can of course avoid facing them by making, with the typical lexicographer, the decision not to insist on a strict separation between a dictionary and an encyclopedia.¹⁷

¹⁷As evidence for the linguistic validity of 'evaluative features' I would accept a pair of words which differ only in the evaluative features associated with them. If, for example, English FOOD and FEED could always refer to the same objects but served in the expressions GOOD FOOD and GOOD FEED to refer to food that was palatable and nutritious respectively, such a pair would provide a good argument for the existence of evaluative features as an aspect of linguistic competence.

The distinction between lexical information about words and non-lexical information about things must come up in dealing

with Bierwischian features, too. Let us examine some of the ways in which speakers of English speak of the horizontal dimensions of pieces of furniture. If we consider a sofa, a table, and a chest of drawers, we note first of all that a sofa or a chest of drawers has one vertical face that can be appropriately called its 'front', but the table does not. For a non-vertically-oriented oblong object that does not have a natural 'front', its shorter dimension is spoken of as its WIDTH, the longer dimension as its LENGTH. For the two items that do have a 'front', the dimension along that 'front' is the WIDTH (even though it may be the longer of the two dimensions), the dimension perpendicular to the 'front' is its DEPTH.

Objects with 'fronts', furthermore, are typically conceived of as confronted 'from the outside', as is the case with the chest of drawers, or as viewed from the inside, as with the sofa. The terms LEFT and RIGHT are used according to this inner or outer orientation. Thus the left drawer of a chest of drawers is what would be to our left as we faced it, the left arm of a sofa is what would be to our right as we face it.

This information is clearly related to facts about the objects themselves and the ways in which they are treated in our culture, and cannot be something that needs to be stated as lexically specific information about the nouns that name them. It seems to me, therefore, that the truly lexical information suggested by these examples is the information that must be assigned to the words LEFT, RIGHT, WIDE, LONG and DEEP (and their derivatives), and that the facts just reviewed about the items of furniture are facts about how these objects are treated by members of our culture and are therefore proper to an encyclopedia rather than a dictionary. It is difficult to imagine a new word being invented which refers to sofas but which fails to recognize one of its faces as a 'front'; and it is likely that if a new item of furniture gets invented, the properties we have been discussing will not be arbitrarily assigned to the noun

which provides the name for these objects, but rather the words WIDE, LEFT, etc., will be used in accordance with the ways in which people orient themselves to these objects when they use them. That the orientation is a property of the position- and dimension-words is further demonstrated by the fact that the uses I have suggested are not by any means obligatory. If a 3' by 6' table is placed in such a way that one of its 6' sides is inaccessible, with people sitting at and 'using' the other side, the table can surely be described as 6' wide and 3' deep. On the other hand, a sofa that is 2 miles 'wide' would probably impress us more as a physical object than as a sofa and would most likely be described as being 2 miles long.

The phenomena I have been mentioning are to be stated as part of the presuppositional components of the lexical entries for the words LEFT, WIDE, etc. Uses of the word WIDE presuppose that the object being referred to has at least one (typically) horizontal dimension; and that the 'dimension' which this word is used to quantify or describe is either the main 'left-to-right' extent of the object as human beings conceive their orientation to it, if that is fixed, or it is the shorter of two horizontal dimensions. The adjectives TALL and SHORT (in one sense) presuppose as HIGH and LOW do not, that the object spoken of is vertically oriented and is typically in contact with (or is a projection out of) the ground, and so on. Similarly the noun POST, as opposed to POLE, presupposes that the object in question is (or is at least intended to be) vertically oriented and in contact with the ground. Many of the features of spatial orientation treated by Bierwisch will take their place, in other words, in the presuppositional components of the semantic descriptions of words usable as predicates.

There are, however, some spatial-orientation features that appear to enter rather basically into the definitions of nouns. Of particular interest are nouns that identify conceptually

n-dimensional entities where these are physically realized by m-dimensional objects, where $m > n$. Thus a LINE is conceptually one-dimensional, and a STRIPE is conceptually two-dimensional. If a straight mark on a piece of paper is viewed as a LINE, the dimension perpendicular to its length is its THICKNESS, but if it is viewed as a STRIPE, the second dimension is its WIDTH. If the stripe has a third-dimensional aspect (e.g., if it is drawn with heavy paint), it is that which one speaks of as its THICKNESS. These are matters that seem to be related to the 'meaning' of these nouns rather than to presuppositions about the objects they name.

8. Functional Shift.

Syntactically and semantically different uses of the same word type should be registered in the same lexical entry whenever their differences can be seen as reflecting a general pattern in the lexical structure of the language. I shall call attention to certain situations in which a word that is basically a noun can also be used verbally, and a situation in which a verb of one type is used as a verb of another type.

I have already suggested that the 'sentential' portions of the definitions of agent and instrument nouns serve to provide the evaluative features associated with these nouns. In many cases they also serve in identifying the verbal use of these same nouns. If, for example, the word PILOT is defined in part as one who flies an airplane, a dictionary entry must show some way of relating this aspect of the meaning of the noun to the meaning of the associated verb. Perhaps, for example, in connection with the activity characterized as (66)

(66) V O A

where V = navigate; presupposition:

O = air vessel

one might wish to state that the noun PILOT is the name given to

one who professionally serves the Agent role in this activity, the verb PILOT has the meaning of the verb in this event-description. If the word is further represented as basically a Noun, a general understanding of 'metaphor' will suffice to explain why the verb PILOT can be used to refer to activities that are 'similar to', not necessarily identical with, the activity of a pilot in flying an air plane.

If the noun LOCK is defined as a device which one uses to make something unopenable, then that is related to the fact that the verb LOCK means to use such a device for such a purpose. If PLASTER is defined as something which one attaches to a surface for a particular range of purposes, then that fact should be shown to be related to uses of the verb PLASTER. I have no proposal on how this is to be done; I merely suggest that when both the verbal and the nominal use of a word refer to events of the same type, the event-description should, other things being equal, appear only once in the lexicon.

Certain fairly interesting instances of verbal polysemy seem to have developed in the following way. Where one kind of activity is a possible way of carrying out another kind of activity, the verb which identifies the former activity has superimposed onto it certain syntactic and semantic properties of the verb which identifies the second or completing activity.

Thus the verb TIE refers to particular kinds of manipulations of string-like objects, with certain results. In this basic meaning of the verb, it occurs appropriately in sentences (67) and (68)

(67) HE TIED HIS SHOESTRINGS

(68) HE TIED THE KNOT

The act of tying things can lead to fastening things, and so an extension of the verb TIE to uses proper to a verb like FASTEN or SECURE has occurred. The verb can now mean to fasten something by performing tying acts, and it is this which accounts for the acceptability of TIE in (69).

(69) HE TIED HIS SHOES

Shoes are simply not in themselves the kinds of objects that one manipulates when tying knots.

In this second use the verb TIE continues to describe the original activity, but it has been extended to take in the result of such activity. The feature that characterizes this second use, then, will be something like (70).

(70) extension: Result (replace FASTEN)

The verb SMEAR, to take another example, refers to the activity of applying some near-liquid substance to the surface of some physical object. The activity of smearing something onto a thing can have the result of covering that thing. The word SMEAR has, in fact, been extended to take on the syntax and semantics of COVER. Thus the 'original' and the extended uses of SMEAR are exemplified in the following sentences:

(71) HE SMEARED MUD ON THE FENDER

(72) HE SMEARED THE FENDER WITH MUD

The difference by which (71) and (72) are not quite paraphrases of each other is found in the meaning of sentence (73)

(73) HE COVERED THE FENDER WITH MUD

By claiming that the second use of SMEAR is one in which the properties of COVER have been superimposed we have accounted for the addition to (72) of the meaning of (73), and simultaneously we have accounted for the fact that the extended use of SMEAR takes (as does COVER) the Goal rather than the Object as its direct object, setting the latter aside in a preposition-phrase with WITH.¹⁸

¹⁸I believe that (72) can be read as a paraphrase of (71). If this is so, a correct description of the situation must be that in its original meanings, SMEAR permits the direct-objects choices seen in either (71) or (72), but in its extended meaning it permits only that exemplified by (72).

The verb LOAD, let us say, means to transfer objects onto

or into a container of some sort. The activity of loading can lead to the filling of that container, and so the verb LOAD has taken on the additional syntactic and semantic functions of FILL. In this way we can account for the use of LOAD in sentences (74) and (75) and the similarities between (75) and (76)

(74) HE LOADED BRICKS ONTO THE TRUCK

(75) HE LOADED THE TRUCK WITH BRICKS

(76) HE FILLED THE TRUCK WITH BRICKS

The verbs SMEAR and LOAD have the same co-occurrences in their extended meanings as in their non-extended meanings. The verb TIE is not like that: in its FASTEN-extension it takes nouns that are not appropriate to its original sense. This means that the description of the feature indicated in the extended use will have to be interpreted (by lexico-semantic rules) in such a way that when the two verbs fail to take the same cases, those of the verb which identifies the resulting action are dominant, the characteristics of the event described by the other verb taking their place among the presuppositions of the verb in its extended sense. Thus it is presupposed of the FASTEN-extension of TIE that the Object is something which can be fastened by an act of tying.

If the type of extension that I have been discussing in this section can be shown to be a quite general phenomenon of lexical systems (at present it is little more than a suggestion, the 'evidence' for its correctness being rather hard to come by), then perhaps we can use this concept to eliminate certain problems connected with what Gruber has called 'incorporation'. LEAP is a verb which takes, in Gruber's system, a phrase in OVER, as seen in (77) and (78)

(77) HE LEAPED OVER THE FENCE

(78) HE LEAPED OVER THE LINE

The preposition OVER can be 'incorporated' into LEAP, but only in the understanding that the associated noun is an obstacle;¹⁹

¹⁹Gruber (1965), p. 24. The condition for incorporation of OVER into LEAP, in Gruber's words, is this: "The object of the preposition must be of significant height with respect to the subject."

thus, the preposition OVER may be absent from (77), but not from (78). The theoretical issue here has to do with the way in which the process of preposition-incorporation is to be sensitive to the size relationship between the entities identified by the subject and prepositional-object nounphrases. My interpretation is that there is an OVERCOME-extension to the word LEAP, and I claim that this accounts simultaneously for the 'obstacle' presupposition and for the non-occurrence of OVER in the extended-sense sentence.²⁰

²⁰This argument is certainly not directed against Gruber's incorporation process as such, only against the proposed need to state separately its applicability to words like LEAP, JUMP, HOP, etc. The quite literal 'incorporation' of OVER in OVERCOME has not escaped my notice.

9. Deep-Structure Acceptability.

Facts about lexical items that relate to the formal properties of sentences can be separated into two sets: requirements on the deep-structure and requirements on the surface structure. The former determine the acceptability of a given word in deep-structures of certain types; the latter specify those grammatical modifications of sentences whose operation is determined by lexical information. The surface conditions are provided in the grammar in the form of the rules which convert deep structures into surface structures (transformational rules), and possibly, in some cases, by the elaboration of special constraints on surface structure.

I shall take the position that content words may all be inserted as predicates, and that their realization as nouns, verbs or adjectives is a matter of the application of rules. Therefore we need not consider part-of-speech classification among the types of information relevant to the lexical insertion into deep structures. What Chomsky has referred to as 'strict subcategorization'²¹ corresponds to what I have treated here

²¹Noam Chomsky, Aspects of the Theory of Syntax (1965), M.I.T. Press, esp. pp. 95-100.

in terms of the number of 'arguments' a predicate takes and their 'case structure'. What Chomsky has referred to as 'selection'²² is described here with the concept 'presupposition' and

²²Ibid, pp. 148ff.

is taken as being more relevant to semantic interpretation than to lexical insertion.

The deep-structure requirements that are of chief interest for this discussion, then, are those of the type Perlmutter has been referring to as 'deep structure constraints' or 'input conditions'.²³

²³My knowledge of Perlmutter's work on deep-structure and surface-structure constraints comes from Perlmutter's presentations at the January, 1968, San Diego Syntax conference and from references in papers and presentations by J. R. Ross.

Examples, due to Perlmutter, are the requirement for BUDGE that it occur in a negative sentence, as shown in grammaticality judgments on (79) and (80);

(79) *I BUDGED

(80) I DIDN'T BUDGE

the requirement for LURK (discussed earlier) that its Agent be non-coreferential to the Agent of the 'next higher' locutionary verb; or for TRY that its Agent be coreferential to the (eventually deleted) subject of the 'next lower' sentence, as suggested by (81) and (82)

(81) *I TRIED [FOR YOU] TO FIND IT

(82) I TRIED [FOR ME] TO FIND IT.

I have included deep-structure constraints in this survey of types of lexical information, but I have nothing new to say about them. I would like to suggest, however, that it may not be necessary to require the extent of detail which Perlmutter envisions or the transformational apparatus which that sometimes entails. Where Perlmutter requires that the Agent of TRY match the Agent of the embedded sentence, it may only be necessary to require that the coreferential nounphrase in the embedded sentence be the one which is destined to be the subject of that sentence. And where Perlmutter requires sentence (83) to be derived transformationally from the structure underlying (84),

(83) HE TRIED TO BE MISUNDERSTOOD

(84) HE TRIED TO GET TO BE MISUNDERSTOOD

this may not be necessary if TRY is merely described as a verb which expresses, of its Agent subject, the intension and attempt to bring about the situation identified by the embedded sentence. This may be necessary in order to account for the way in which we understand sentence (85),

(85) HE TRIED TO SEEM CHEERFUL

a sentence which cannot be straightforwardly paraphrased in such a way as to reveal an underlying agentive notion in the embedded sentence.

10. Government.

Once a specific predicate word is inserted into a deep structure, its presence may call for certain modifications in

the rest of the sentence. The typical case of this is what is known as 'government'. For English the operation of the rules establishing 'government' associates prepositions with noun-phrases and 'complementizers' with embedded sentences and their parts.²⁴

²⁴The term 'complementizer' is taken from Peter Rosenbaum, The Grammar of English Predicate Complement Constructions, (1968) M.I.T. Press, and refers to the provision of THAT, -ING, etc., in clauses embedded to predicates.

Thus--to consider only the association of prepositions with noun-phrases--we speak of GIVING SOMETHING TO SOMEBODY, ACCUSING SOMEBODY OF SOMETHING, BLAMING SOMETHING ON SOMEBODY, INTERESTING SOMEBODY IN SOMETHING, ACQUAINTING SOMEBODY WITH SOMETHING, and so on. It is certain, of course, that many of the facts about particular choices of prepositions and complementizers are redundantly specified by other 'independently motivated' features of predicates or are determined from the nature of the underlying 'case' relationship, so that a minimally redundant dictionary will not need to indicate anything about the form of 'governed' constituents directly. Until it is clear just what the needed generalizations are, however, I propose using the 'brute-force' method and specifying the prepositions one at a time for each verb and each case relationship.

11. Transformationally Introduced Predicators.

Certain lexical items can be used as predicates semantically, but cannot themselves occur as surface predicate words. Such words will appear in the syntactic position expected of some other constituent (usually, I think, that of the Result constituent), and there must therefore be lexically associated with them some predicator word, a word that is capable of bearing the

tense and aspect properties that can only be attached to verb-like elements. The constructions I have in mind are those of the type HAVE FAITH IN, GIVE CREDENCE TO, BE LOYAL TO, etc., and the predicator words I have in mind include BE, DO, GIVE, HAVE, MAKE, TAKE and others.

12. Subject and Object.

One of the subtlest but at the same time most apparent aspects of the syntax of predicates is the set of ways in which the subject/verb and verb/object constructions can be set up. These constructions have as their purpose--generally, but not always--a focusing on one 'terminal' of a multi-argument expression, a focusing on one particular role in the situation under discussion.

I have suggested elsewhere²⁵ that the normal choice of

²⁵"The case for case" (1968), to appear in Universals in Linguistic Theory (see footnote 6).

subject is determined by a hierarchy of case types, and only those predicates which require something 'unexpected' as their subjects need to have such information registered in their lexical entry. I believe that, at least in the vast majority of cases, those noun-phrases capable of becoming direct objects of a given verb are at the same time the ones which can appear as the subjects of passive constructions made with the same verb. Thus such information at least does not need to be stated twice, and at best may not need to be stated at all for most verbs, since it is most likely subject to rather general statements about combinations of 'cases'.²⁶

²⁶Incidentally, verbs which are obligatorily passive are verbs with one associated nounphrase designated as 'direct

object' but none as 'normal subject'. An automatic consequence of this situation is that the expression will be cast in the passive form.

There is an extremely interesting set of subject- and object-selection facts that seem to operate in connection with expressions of 'quantity' and 'contents'. The verb SLEEP refers to an 'activity' of an animate being in a particular place, where the one who sleeps is typically mentioned as the subject; but when the focus is on the place and at issue is the number of different beings that can sleep in that place, the verb permits the Place nounphrase to appear as subject. We see this in sentence (86)

(86) THIS HOUSEBOAT SLEEPS EIGHT ADULTS OR SIXTEEN CHILDREN.

The verb FEED has its use as a 'causative' of EAT, but it can be used to express other kinds of relations with eating, too. To indicate the typical relation between the Agent and a description of the 'contents' of his eating activity, we use sentences like (87)

(87) THE CHILD FEEDS ON RAISINS

There is a relation between a recipe (which identifies, among other things, quantities of food) and the number of people who can (with satisfaction) eat the food one prepares by following the recipe, and this is the relation we see expressed in a sentence like (88)

(88) THIS RECIPE FEEDS EIGHT ADULTS OR FOUR CHILDREN

In the case of FEED, the connection between the Place and a quantity of 'eaters' requires the latter quantity to be a 'rate'. Thus we get sentences like (89)

(89) THIS RESTAURANT FEEDS FOUR HUNDRED PEOPLE A DAY.

It is not clear to me how one can capture facts of the sort I have just suggested in any way short of providing (in effect) separate lexical descriptions for each of these uses. It is clear, anyway, that examples (86)-(89) cannot be understood as merely exemplifying 'causative' extensions of these verbs.

13. Appendix: Sample Lexical Entries.

BLAME: -Locutionary, -Momentary

arguments:	x, y, z
cases:	Agent, Goal, Object
prepositions:	by, on, for
normal subject:	x
direct object:	y or z
presuppositions:	x is animate z is an activity z' or the result of z' x judges [z' is 'bad']
meaning:	x judges [y caused z']
zero for indefinite:	x
zero for definite:	z

ACCUSE: +Performative, +Locutionary, +Momentary

arguments:	x, y, z
cases:	Agent, Goal, Object
prepositions:	by, Ø, of
normal subject:	x
direct object:	y
presuppositions:	x and y are animate z is an activity x judges [z is 'bad']
meaning:	x judges [y caused z]
zero for indefinite:	x
zero for definite:	z

CRITICIZE: +Locutionary, +Momentary

arguments:	x, y, z
cases:	Agent, Goal, Object
prepositions:	by, Ø, for
normal subject	x
direct object:	y/-z or z
presuppositions:	x and y are animate z is an activity z' or the result of z' x judges [y caused z']
meaning:	x judges [z' is bad]
zero for	
indefinite:	x, and y if z is a 'result'
zero for	
definite:	none