

Review of Componential Analysis of General Vocabulary: The Semantic Structure of a Set of Verbs in English, Hindi, and Japanese, Part II, Bendix, Edward Herman (I.J.A.L. Vol. 32, No. 2, Publication 41) 1966.\*

Charles J. Fillmore

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Review of Edward Herman Bendix, Componential Analysis of General Vocabulary: The Semantic Structure of a Set of Verbs in English, Hindi, and Japanese

1. The work under review is E. H. Bendix's attempt to apply a version of componential analysis to the semantic structure of a set of verbs taken from the 'general vocabulary'. The verbs--from English, Hindi, and Japanese--all express a semantic relation associated with the English verb have. What this means can be seen in the following paraphrases: (i) to say that I gave a thing to John is to say that I did something which resulted in John's having the thing; (ii) to say that I took a thing from John is to say that there was a time when John had the thing, and then I did something which resulted in my having it; (iii) to say that I got rid of a thing is to say that there was a time when I had the thing, but then I did something which resulted in my not having it; or (iv) to say that I lost a thing is to say that there was a time when I had it, and then there was a time when I didn't have it, and this change of state came about by chance. The monograph at hand is an attempt to devise an apparatus capable of identifying paraphrases of the type just illustrated. The apparatus turns out to require such concepts as 'cause', 'chance', 'time', the various logical operations, and the means for introducing variables in the definiens not found in the definiendum.

Chapter 1 contains a discussion of the history of componential studies, and a few remarks on the author's methodological assumptions. Chapter 2 offers a series of 'semantic tests' for determining the data of semantics. In Chapter 3 the author analyzes English have in its 'general' and 'inherent' senses, providing a 'transformational definition' (see below) for the general sense and relating the inherent sense in various ways to uses of the genitive construction. In Chapter 4 he demonstrates the results of applying his semantic tests to the English verbs mentioned above, plus get, get for, find, lend, borrow and keep.

In Chapters 5 and 6 he examines the synonyms of English have in Hindi and in Japanese, and he shows how their meanings relate them to words in these languages meaning get, receive, take, etc. Chapter 7 is a review and summary. Appendices are included that deal with the transformational introduction of have in English (via a 'topic transformation') and the various semantic tests used for the Hindi and the Japanese material.

There is much in this monograph that invites detailed attention. The chapters on Hindi and Japanese contain useful observations on such matters as topicalization and the ways in which the difference between inherent and accidental possession is expressed in these languages. The discussion of English contains a great many insightful remarks on uses of have and on the genitive construction. My remarks, however, will be limited to general questions of semantic theory and to the description of certain English verbs.

## 2. Semantic Analysis.

The semantic analysis of sentences is viewed in this work as an extension of the kind of logical reformulation of ordinary sentences that one learns in the symbolic logic handbooks. It is an extension thereof, because while the handbooks assist their readers in the correct perception of the logical form of a sentence as a whole, semantic analysis in linguistics must lead to an understanding of the concepts themselves, and in such a way as to make possible the study of such matters as the conceptual interrelatedness of lexical items, the relative complexity of concepts, the nature of semantic primitives, and the explication of certain kinds of semantic judgments on sentences.

The beginner in logic is frequently asked to formulate, in terms of certain arbitrarily chosen symbols and a set of logical operators, the logical structure of some (typically categorical) sentence like (1).

(1) every cloud has a silver lining

He learns to think through sentence (1) in a way suggested by (2),

(2) for a thing to be a cloud implies that there is  
some other thing that is silver and is a lining  
and belongs to the former

and he then expresses (2) symbolically, as, say, (3).

(3)  $(x) (Cx \supset ((\exists y)((Sy)(Ly)(Bxy))))$

This is about as far as the beginning logician is expected to go.

Empirical semantic analysis in linguistics, however, has somewhat different requirements. The linguist-semanticist tries to discover just those logical operations which are reflected in natural language sentences, and just those non-logical concepts which constitute, or are definable in terms of, a substantively specific set of notions that can be viewed as the conceptual basis of a universal semantic theory.

We may illustrate this extended view by an attempt to capture the logical form of sentence (4).

(4) some people are bastards

Verbally (in the manner of (2)) we begin with (5),

(5) there is at least one x such that x is a  
person and x is a bastard<sup>1</sup>

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<sup>1</sup>Already we see a gap between the expressive powers of natural language symbols and one particular choice of logical notations. The English plural indefinite determiner some differs from the existential quantifier in logic in requiring an understanding of plurality. (5), in other words, should be expressed in some notation that means "there are at least two...".

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and, symbolically, (6).

(6)  $(\exists x)((Px)(Bx))$

We must go further, of course, and that is because bastard is itself conceptually complex. A more detailed version of (5) might be (7).

(7) there is some x such that x is human and there is some y such that y is the mother of x and there is some t such that t is a time and x was born at t and y was not married at t

But (7) still fails, because mother is not a semantic primitive, and married, though treated here as a property concept, is basically a relational concept. A more correct formulation may have to be something like (8).

(8) there is some x and some t such that x is human and t is a time and x was born at t, and there is some y such that y is female and y is the parent of x, but there is no z such that z is married to y at t

But we still cannot be satisfied. Even if we assume that 'human', 'parent', 'female', 'born' and 'married' are semantic primitives--which would mean that they are defined in terms of phenomena of the real world, not in terms of other linguistic concepts--the way in which references to 'time' are to be understood in the definition needs to be made clear, and this requires an extensively elaborated logic.

Semantic analysis of natural languages, in short, needs to face, at the very least, such problems as (i) what logical operations are natural to human languages, (ii) what are the substantive semantic primitives in the semantic organization of a given language (or of all languages), and (iii) what part do certain substantive notions such as 'time' play in semantic theory. Bendix addresses himself relevantly to these questions, but sometimes in ways which are misguided.

First, a semantic theory provides a way of converting a sentence into its highest-level logical form (in the manner of reformulating (4) as (5)), and second, through its lexicon, it provides a semantic interpretation for each lexical item in the reformulation. It does this, not by dealing with lexical items one at a time, but by associating with the 'functions'

which comprise the 'components' of the reformulation, a set of more primitive 'functions' which constitutes paraphrases of them. Bendix illustrates the first step with the following example (p. 7). Sentence (9) is equated, in some way, with expression (10).

(9) John has a dog.

(10) there is a B such that 'A has B' and 'A = John'

Items bounded by single quotes are the highest-level 'components' of the meaning of the sentence. Existential quantification ('there is a B') is defined for semantic theory in general. The separation into 'components' of the type 'A has B' is necessary because the dictionary, on Bendix's conception (due to Weinreich), has lexical items entered in functional or sentential form. Sample lexical items in a Weinreichian dictionary are 'A has B' or 'A is a dog', where variables, represented with early capital letters, are place-markers for noun phrases.

This first step is obviously very important, but unfortunately Bendix says nothing whatever about the particular way in which (10) is to be determined from (9). Not a hint is given on the ways in which the grammatical structure of (9) determines (10), nor are any reasons given for the specific form presented in (10). The former lack is presumably to be accounted for on an assumption that grammatical theory determines the decomposability of (9), or possibly on the assumption that (10) (when given grammatical structure) is in fact the deep structure (in the sense of Chomsky) of sentence (9). I think it exceedingly regrettable that nothing is said to clarify this point.<sup>2</sup>

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<sup>2</sup>The difficulty I see in the specific form of (10) has to do with the component 'A = John'. If (9) is intended to be a logically complete sentence, then we are forced to interpret 'A = John' as meaning that John is (the name of) an individual constant, in which case the reformulation of (9) would be more accurately given as (i) than as (10):

(i) there is a B such that 'John has B' and 'B is a dog'

If this is what was intended, then something should have been done to make clear that 'A = John' in (10) is not to be considered one of the components of the meaning of (9). We are to assume that 'A = John' has been lifted out solely for the sake of representing have in a purely 'functional' form (i.e., as 'A has B'). But in that case, John must be listed in the dictionary merely as (the name of) an individual constant, and dictionary items, Bendix has told us, are all to be entered in 'functional' form. This looks like a contradiction. It may be, of course, that the theory of names is a separate matter from the issues of semantics and lexicology that Bendix wishes to account for in this study; but in that case he should surely have begun with an example that used only common nouns.

If we are to understand 'A = John' in some other way, then (9) may need to be reformulated, as, say, (ii).

(ii) there is an A and there is a B such that 'A = John' and 'B is a dog' and 'A has B'

But sentence (ii) asserts the existence of John, which (9) surely does not. Expression (ii), then, is an incorrect reformulation of (9).

The only alternative is to interpret the symbol '=' as a two-termed predicate meaning something like 'is named', and to understand (10) as being logically incomplete in containing the symbol 'A' as a free variable. The incompleteness of (10) may be thought of as matching the incompleteness of (9), in the sense of not being intelligible to the hearer independently of some other understandings. Sentence (9), in other words, may be understood as presupposing, rather than asserting, the existence of the A that is named John. Sentence (9) is used, if this interpretation is correct, only when the hearer already knows that John exists and who he is.

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### 3. Definitions.

A semantic theory, equipped with an adequate dictionary, ultimately provides for each grammatically analyzed sentence a paraphrase set, each component of which is terminal, i.e., cannot itself be further decomposed into a more detailed paraphrase set. The dictionary does this, as we have seen, by providing definitions of terms-in-context. We must now inquire what Bendix expects of a definition.

Unfortunately, Bendix's accounts of the nature of definitions are not mutually compatible. Central to his conception of his

task is the notion of minimal definition, which he characterizes (p. 2) as

a statement of semantic components that are sufficient to distinguish the meaning [of a form] paradigmatically from the meanings of all other forms in the language.

Bendix views this choice as forcing out of consideration such issues as the combinatory or selectional properties of words, connotation, ostensive definition, metaphor, idioms, and the processes of semantic change (p. 2).

I see in the minimal definition principle, as in the methodological goals of redundancy elimination and homophony reduction in general, the first place where Bendix has gone wrong. The kinds of conclusions that this principle forces on him can be seen in his discussion of English give. He argues (pp. 70f) that give means (11) rather than (12).

(11) cause (somebody) to have

(12) cause (somebody) to get

Get entails the notion of 'change', while have does not; hence (12) is more complex 'by one component' (the 'change' component) than (11). Give 'means' (11) rather than (12) because there is no other English word which means (12) rather than (11); the 'change' component is redundant.

I believe Bendix's adherence to this principle to be totally wrong, first because if there are phrasal ways of expressing (12), a semantic description of English should show that these are equivalent to expressions containing give. More important than that, however, I believe that the notion of minimal paradigmatic contrast has been given an exaggerated importance in linguistic analysis in general. A semantic description should be judged by the success with which generalizations can be correctly formulated in its terms, not at all by the property of having just enough 'components' associated with each word to distinguish it from



every other non-synonymous word in the language.<sup>3</sup>

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<sup>3</sup>I assume that is it this same principle which accounts for Bendix's omission of the obligation-to-return sense in the words lend and borrow. To say that C lends B to A at time T means, in Bendix's terms, that 'C has B before T', that 'C causes A to have B after T', and that 'B is not A's' (pp. 72ff). The fact that this particular trio of complements uniquely characterizes lend makes it unnecessary (if we accept the 'minimal definition') to indicate that the expression with lend also implies that A is under obligation to return B to C at some time in the future.

It is conceivable that Bendix has in mind supplementing the dictionary component of a semantic theory with a system of redundancy rules which will have the effect of filling in the needed information, both here and in the case of expressions with give. But if this is the case, his attempt to show how semantic theory provides descriptions of sentences by identifying paraphrase sets should surely have included a description and justification of such a component. This general approach of appealing to a 'system of oppositions' for definitions reminds me of certain discussion in anthropology. Recent proposed changes in the 'definition' of man have come about, not because of new discoveries about the nature of man, but because of new discoveries about (among other things) chimpanzees.

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Ordinarily we think of the adequacy of definitions in one of two ways: either the set of definitions as a whole provides in the simplest way an account of the interrelatedness of the concepts for which lexical items exist in a language, or else the definitions explain the meanings of 'difficult' or 'less familiar' words by using 'easy' or 'more familiar' words. In addition to his use of the 'minimal definition' just discussed, Bendix views each of these two considerations as providing further desiderata for definitions.

If we assume that each dictionary entry need not state its paraphrase set in terminal (non-decomposable) form, that means either that the definiens may contain terms which are elsewhere defined in the same dictionary (cross-reference), or that the definiens may contain concepts definable within a semantic theory

but independently of the object language.<sup>4</sup>

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<sup>4</sup>Bendix does not seem to be clear about this distinction, and that, I assume, is because the language he started out describing was the language he was writing in. We find in his definienda, for example, such terms as 'get', 'cause' and 'change', and we find in the text definitions for (expressions containing) these terms. Yet he gives the reader no interpretation of the status of these intermediate concepts, and he nowhere explicitly distinguishes those definitions which are language specific from those which belong in the metatheory.

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The employment of intermediate concepts of either type affords a way of revealing the interrelatedness of the terms in a lexicon. That Bendix wishes this to be one of his goals is found in his discussion of taxonomy (p. 6), where he seems to favor the use of cross-referencing in definitions as a way of showing class-membership relationships between concepts. He proposes that

'lending', 'granting', 'conferring', 'imparting', etc., could all be considered kinds of 'giving', with their definitions including 'give' as a component.

Bendix takes this as a desideratum for a definition, but not quite as a criterion; we know this because his own definition of lend does not contain the term give.

Alternatively, one could desire for each definition that the terms it contains in the definiens be more familiar than the terms in the definiendum. Converting 'familiarity' to 'relative frequency', Bendix writes (p. 61):

It is desirable, where possible, to state the components of a definition in the object language using forms that have a frequency of occurrence which is higher than, or at least the same as, that of the forms being defined... Where it is not possible to formulate the components in this way, we may have to devise symbols and concepts, or borrow them, for example, from grammatical description or from the terminology of logic, or add lower-frequency items of the object language.

Once again, what is suggested here is not a criterion, because provisions are made for situations in which the conditions cannot be satisfied. In practice, Bendix seems to reject both of these latter conditions, because of his choice of the minimal definition criterion; yet the fact that he refers to these as desiderata suggests to me that he does not see the conflict.

That there are conflicts in these various conceptions of 'definition' can be illustrated by considering alternate definitions of the English kin-term uncle. If we restrict ourselves to terms that would be known by someone who simply did not know the word uncle, an expression like (13) would have to be defined in some such way as (14).

(13) y is x's uncle

(14) y is either x's mother's brother or x's father's brother, or else y is married either to x's mother's sister or to x's father's sister<sup>5</sup>

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<sup>5</sup>Of course, if we were to face the genuine practical problem of explaining the meaning of uncle to some child, say, who really did not know what it meant, we would surely need to worry about whether (14) is in fact in a form the child could understand; and it is not. But that, let us agree, is another problem.

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If, on the other hand, we wished our system of definitions to interrelate a set of concepts in the simplest way, the most highly valued definition of (13) would be (15), or, more accurately, (16).

(15) y is a brother-in-law of one of x's parents

(16) there is a z such that z is a parent of x and y is a brother-in-law of z

The reason for the adequacy of (16) is that the term brother-in-law needs to be defined anyway, and the relations between two people subsumed in the brother-in-law relation are exactly those that can hold between (at least) one of one's parents and one's uncle. The definition captures this relationship and simultaneously

'simplifies' the definition of uncle. Yet it is unlikely that there is any speaker of English who correctly understands the meaning of brother-in-law, but fails to know the word uncle.

The point of this digression is that except for highly specific purposes, it is impossible to evaluate a system of definitions. The concept of minimal definition presupposes an understanding of the meaning of every term in the language, because only thus can one be sure that a particular semantic component or feature is in fact 'redundant'. When definitions are conceived of as explanations of less familiar terms through the use of more familiar terms, we are equally helpless, first because we simply lack knowledge of the ontogeny of meaning-acquisition, but more importantly because it is surely the case that 'familiarity' would rank two words in one order for one speaker, in the opposite order for another. An interpretation of a system of definitions as expressing the conceptual basis of a field of terms, on the other hand, fails to lend itself to a sensible distinction between 'cognitively real entities' that the linguist as empirical scientist 'discovers', and the conceptual entities which the linguist as logical analyst posits. Bendix's discussion of definition, in short, offers no new way out of the lexicographer's principal dilemma.

#### 4. Semantic Components.

But let us assume that some decision can be made about the types of relationships that ought to be expressed in a dictionary entry, and let us turn our attention to the defining concepts themselves. We may begin by seeking an understanding of the logical character of proposed semantic primitives.

A distinction needs to be made between property-terms (one-argument predicates) and relations (predicates with more than one argument). A difficulty in seeing this distinction is that relational concepts sometimes show up in natural languages

disguised as property terms, i.e., in a 'derelativized' form. In illustrating this fact, Bendix cites the familiar ethnological definition of uncle as 'male, kinsman, first ascending generation, first degree collaterality', and he points out that although this definition has the form of a conjunction of property terms, all but 'male' are in fact disguised relational terms.

The existence of words and concepts that are in effect derelativized relational terms is what makes necessary the positing, in definiens, of quantified variables not found in the definiendum. Some words, it is true, are definable simply and purely by means of property terms (as when woman is defined as 'human, female, adult'), but a great many of the semantically interesting words in our language involve relational concepts in one way or another.

#### 5. Negation and Ambiguity.

Bendix has a great deal to say about negation in semantic theory. The first point to make here is that Bendix's use of negation sheds light on the use of disjunctions in definitions, some of which correspond intuitively to true ambiguity, others of which do not. Bendix gives only part of the evidence for this.

It needs to be explained, first of all, that a semantic theory, in Bendix's view, is viewed as nothing more than a device for determining, for each grammatically analyzed sentence, the set of paraphrases which constitutes its meaning. In this view, a semantic theory as such does not account for the ambiguity of utterance types, because such judgments are successfully accounted for only by noting, on working through the whole grammar, that phonetically indistinguishable utterances are sometimes generated from underlying representations which have different semantic interpretations.

Bendix criticizes the treatment that Katz and Fodor (1963) give to ambiguity on the grounds that they consider the problem,

incorrectly, from the 'hearer's point of view' (p. 16). Bendix's talk of ambiguity leads him to distinguish utterance types, which are capable of being ambiguous, and utterance tokens, which are not. An utterance type is ambiguous if some of its tokens mean one thing, others mean something else. An utterance token corresponds to one set of choices, to one unique intended message, on the part of the speaker of the utterance; utterance tokens which are phonetically indistinguishable from each other (and are therefore capable of being identified with each other by the hearer) are tokens of the same utterance type. The Katz and Fodor theory had the character it had precisely because it was linked with a model of grammar which introduced lexical items as terminal symbols of a system of phrase-structure rules. Their theory 'accounted for' ambiguity as a part of the operation of semantic rules only in that restricted sense in which a sentence was ambiguous because one or more of its lexical items was polysemous.

It seems a little misleading to me to discuss ambiguity in terms of the type/token distinction. It is much more relevant to speak of the nature of the mapping relationship between semantically distinct objects and phonetically distinct objects, as that mapping is defined by the grammar as a whole. I assume that Bendix's talk of utterance tokens is to be thought of as taking the speaker's point of view. It seems more clearly wrong to speak of ambiguity from the speaker's than from the hearer's point of view, if only for the reasons that a speaker may intend an utterance to be ambiguous, or he may not know what it is that he is saying.

Nevertheless we may stick to Bendix's terms for the next point, which is that the operation of logical denial, or negation, shows that semantic judgments are basically judgments on utterance tokens, not utterance types. Suppose we wish to say that the utterance type P means either Q or R, and, in saying this, intend to say that P is ambiguous. That is, it is not the case that a given token of P means that either Q is true or R is true,

but rather that a given token of P is either understood as asserting Q or it is understood as asserting R. Bendix's evidence that this is the correct way to speak of ambiguity is the way in which utterances of the type not-P are understood. If not-P is a negation of the ambiguous utterance type P, it would have to be understood as meaning not-Q and not-R, i.e., its meaning would be a joint denial of the two senses by which P was said to be ambiguous. In fact, however, the utterance type not-P either means not-Q or it means not-R.

Consider by way of illustration sentence (17)

(17) John is a bachelor.

Let us assume that (17) is ambiguous in the ways made familiar by Katz and Fodor. In saying (17) we may be asserting of someone called John that he is an unmarried male adult human, or that he is a young knight serving under the banner of another knight, or that he is the holder of a bachelor's degree. What Bendix's conclusions make us realize is that sentence (18)

(18) John isn't a bachelor

which is a denial of (17), is actually understood always as a denial of one of the alternative meanings we would associate with (17), not a denial of all of them at once. That is, if someone had just uttered (17) as a way of saying that John is married, he would not be expected to admit that he had made a mistake if somebody pointed out to him that John was a university graduate. The speaker would merely, and justly, explain that it was not in that sense of bachelor that he was saying of John that John was a bachelor.

What Bendix failed to point out, however, is that there is a use of disjunction in definitions that does not correspond to ambiguity proper. Bendix would say that disjunctive definitions which operate under negation in the way we have seen require either the separation of bachelor into several distinct lexical items (distinguished by their definientia), or that in a given utterance token one meaning is chosen and semantic judgments are

judgments about tokens, not types. By pointing out a new sense of disjunction in definitions, however, we shall see reasons for preferring the first of these two formulations, because the new use can then be thought of as the use of disjunction in a single lexical entry.

I suggest that the word brother-in-law can only be defined disjunctively. If I say (19),

(19) John is Sam's brother-in-law

I am saying either that John is Sam's wife's brother, or that John is Sam's wife's sister's husband, or that John is Sam's sister's husband (or that John is Sam(antha)'s husband's brother or Sam(antha)'s husband's sister's husband). If I say (20), however,

(20) John isn't Sam's brother-in-law

and you point out to me that John is Sam's sister's husband, I must surely admit that I was wrong. I cannot appropriately reply that in saying (20) all I intended to deny was that John was Sam's wife's brother. It is clear that in this case a disjunction is an appropriate formulation of a single meaning. It is regrettable that Bendix's discussion of ambiguity failed to include cases of the type of brother-in-law, for then he would have seen the pointlessness of his hearer's-point-of-view criticism of Katz and Fodor.

## 6. The Scope of Negation.

Bendix's view of negation, however, seems to be faulty in itself. He distinguishes between 'narrow-scope' and 'wide-scope' negation, and he sees an ambiguity in wide-scope negation which I am sure is not there--especially if he intends this distinction to correspond to properties of negative sentences in natural languages. Sentence (21) can be negated in narrow-scope as (22); in wide-scope negation, however, expressed as (23), the sentence is ambiguously represented as (24), (25), or (26).



- (21) he has every one
- (22) he not-has every one
- (23) not (he has every one)
- (24) not-he has every one
- (25) he not-has every one
- (26) he has not-every one

I believe that Bendix does not see what is going on. The very least we should expect of (23) is that the expression with not should be true just in those cases when the expression without not is false. Bendix's failure to see this has a great deal to do with the particular sentence he chose to work with. Two different people cannot each have every one, so if not-he does, then he does not. Suppose we try a different example: (28), the negation of (27).

- (27) John saw the cat
- (28) not (John saw the cat)

(28) would be interpreted, if I understand Bendix correctly, as one of (29)-(31).

- (29) not-John saw the cat
- (30) John not-saw the cat
- (31) John saw not-the-cat

If this distinction is to be matched by natural language sentences, we might assume that Bendix would interpret (29)-(31) as somehow representations of the English sentences (32)-(34)

- (32) John didn't see the cat
- (33) John didn't see the cat
- (34) John didn't see the cat

where italicization expresses the location of contrastive stress. It seems to me that it is as clear as anything could be that sentences (32)-(34) all deny that John saw the cat, and that the position of emphatic stress has merely the function of contrasting the sentence with some other presupposed non-negative sentence which differs from the presented sentence in the constituent whose position is identified by the presence of the contrastive

stress. But the semantic expressions (29)-(31) are in fact compatible with (27), if it is possible to make any sense whatever of the hyphenated phrases. Clearly expression (29) must mean that some person distinct from John saw the cat, but this state of affairs is perfectly compatible with John's having seen the cat too; expression (31) similarly asserts that John saw something which was not the cat, but he may have had the cat in view too. Similarly, (30) may be interpreted as meaning that John 'did something' to the cat distinct from seeing it; but he may have seen it too. I have argued elsewhere (Fillmore (1967)) that the presumed evidence for a distinction within grammatical theory between sentence negation and constituent negation--a distinction which only becomes a problem in sentences with certain kinds of quantifiers--can always be accounted for in terms of other facts about quantifying words.<sup>6</sup>

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<sup>6</sup>It should be pointed out that a distinction between negation across quantifiers and quantification across negation only appears in logic when there are quantifiers (needless to say), that is, with the so-called categorical sentences. To claim for natural languages that there is only one type of negation is not to proclaim a **weakness** in natural languages vis à vis logic, for any quantified expression with a negation to the left of the quantification can be replaced by another and equivalent quantified expression with a negation to its right (or vice versa) by interchanging universal with existential quantification.

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#### 7. Negation and the Number of Components.

Some of the logical properties of negation might have been used to shed some light on the problem of knowing how many distinct semantic components it is necessary to posit for a single definition. Certainly if the number of components is to be involved in determining such matters as the relative complexity of concepts, it is important to be able to 'count' them accurately.

In his initial treatment of expressions containing the word take, Bendix defines (35) as (36) (p. 18f)

(35) A took B

(36) (i) 'A got B' (ii) 'A caused (A got B)'

Suppose that we let P represent (35) and Q and R represent (36i) and (36ii) respectively. What could be meant by non-P i.e., (37)?

(37) A didn't take B

This expression must mean, as Bendix would have it, either (38), (39), or (40)

(38) not-Q and not-R

(39) not-Q and R

(40) Q and not-R

Ordinarily, we would like to say that because of what (36i) and (36ii) mean, it is illogical to assert (36ii) (i.e., R) and deny (36i) (i.e., Q); but our author has explained that semantics describes merely what an expression means, and that logic or common sense is involved in deciding whether an expression makes sense.

Now, then, how are we to understand the compound expression not-P and Q, or (41)?

(41) A didn't take B, A got B

Recalling the interpretation given to not-P (38)-(40), we must say that (41) is to be interpreted as

(42) not-Q and not-R and Q

(43) not-Q and R and Q

(44) Q and not-R and Q

Since, by juxtaposing two sentences, we have come up with two semantic renderings of them which are self-contradictory ((42) and (43)), we have accounted for the fact that we understand (41) as meaning (44) (simplified as (40)).

But notice that all of this computing is necessary precisely because Bendix allows such expressions as Q and R to be separate

semantic components in the first place. Bendix's theory thus asserts that the English sentence (37) could mean (45).

(45) A caused himself to get B but he didn't get it  
Furthermore, the way in which these components are presented fails to show that this meaning is unacceptable. This is a serious weakness, it seems to me, and it points to a need within semantic theory of the notion of implication. Assertion P means R, but R implies Q. Exactly the relations that hold among these assertions are covered by this statement. First of all, there is no occasion (since they are no longer separable components) for coming up with any expression which asserts R and denies Q. The logical laws of implication correctly predict that although 'he took it' implies 'he got it' (modus ponens) and 'he didn't get it' implies 'he didn't take it' (modus tollens), 'he didn't take it' fails to imply 'he didn't get it'. In this way we can account for the acceptability of (41) and the unacceptability of (39). It is true that in Bendix's final account of 'take', he has only the causative component, but he gives no warning or explanation of this shift of analysis. The barest elaboration of a theory of implication, and the relationship such a theory might hold to the phenomenon of redundancy that Bendix does give some attention to, would have made it possible to improve the clarity of Bendix's presentation in invaluable ways.

## 8. Criteriality.

The concept of 'minimal definition' causes Bendix to leave out of his definition certain features of the meaning of an expression which are redundant within the system, and a tacit acknowledgement of the laws of implication had the effect of allowing him to leave out certain features of the meaning of an expression which are 'redundant' in a more formal sense--in that they are logically implied by the terms which have been included. The major purpose and effect of Bendix's semantic tests, however, is to distinguish between the criterial aspects of the meanings

of a word and what he unhappily calls its connotational meanings. A connotational meaning of an expression, on this usage, is something you expect to be true if the expression is true, but not necessarily so. Bendix illustrates the distinction in his treatment of (expressions containing) the word 'lost'. Expression (46)

(46) A loses B at T

means that A has B before time T and that A does not have B after T and that this change of state is unintentional. A connotation of (46) is that immediately after T, A does not know where B is.

Bendix has elaborated what he calls the 'but-test' for discovering connotational meanings. The test operates like this. Consider the two sentences (47) and (48).

(47) P but Q

(48) P but not-Q

The rule of thumb is that just in case one of these sentences sounds more natural than the other, then Q (if (48) is the more natural) or not-Q (if (47) is the more natural) is a connotation of P. In other words, if Q is appropriately introduced by but in a sentence, that must mean that Q is true in many cases where P is true, but in this case not. Note that if Q were criterially associated with the meaning of P, then both sentences ought to sound equally strange, since one would be a tautology, the other a contradiction, and neither appropriately introduced by but.

The test can be illustrated as follows:

(49) He just lost his watch, but he knows where it is

(50) He just lost his watch, but he doesn't know  
where it is.

Since (49) is all right but (50) isn't, 'not knowing where something is' is not a criterial attribute of 'having just lost it'.

But now compare these two:

(51) He lost his watch at four o'clock, but just  
before that he had it.

- (52) He lost his watch at four o'clock, but just before that he didn't have it.

These are both bad, and so 'having a thing before T' is a (potential) criterial component of 'losing it at T'. In this case, of course, the test itself does not decide which is criterial, the affirmation or the negation; other tests are required for that.

Bendix's discussion of the 'but-test' tells us a great deal about the semantics of the word but, but I am not convinced that the word can be put to effective use in tests for discovering other semantic facts. The test is not a positive test for criteriality, for when two sentences are equally odd, first there is no way of knowing which of the two second-clauses expresses the criterial attribute, and secondly there is no way of knowing if either of them does. Both of the following two sentences are odd, and presumably equally odd, but questions of criteriality are not relevant. The two clauses have no semantic connection whatever.

- (53) Mary is a mother, but I was born in Albania.

- (54) Mary is a mother, but I wasn't born in Albania.

Furthermore, there are cases where there is a definite preference of one sentence over the other where in fact we would see criteriality in the meaning of the rejected second-clause.

Consider the next two sentences:

- (55) Mary is a mother, but she has had some children.

- (56) Mary is a mother, but she hasn't had any children.

We prefer (56) to (55), in spite of the fact that, generally speaking, to say of someone that she is a mother is to say that she has had at least one child; but the sentence is interpreted as informing us that there is some novel sense in which the speaker wishes us to understand the word 'mother'. Bendix is aware of these matters, and surveys quite generously the ways in which counter-examples to the 'but-test' appear to show up; but my

point is that the kinds of judgments one must be able to make in order to interpret the results of the 'but-test' are in themselves sufficient to determine criteriality. If I know that in the one case (e.g., with lost) a usual sense of a word is intended, and in another case (e.g., with mother) some novel sense is being proposed, then I already know the very facts the 'but-test' was devised to aid me in discovering. For all its genuine interest in demonstrating the meaning of the conjunction, this 'test' is not at all what is needed for the distinction Bendix wishes to make operational.

#### 9. Presuppositions.

I have suggested that Bendix's theory of semantics is in need of an explicit concept of implication, so that, in particular, the question of the number of semantic components can be resolved and certain logical relations between propositions asserted by sentences can be presented. Semantic theory should reveal, in other words, that if he took it, he got it.

But there is another aspect of the meaning of an expression in addition to what it asserts and what it implies (and still quite apart from what it 'connotes'), and that is what the expression presupposes. I suggested above that a noun phrase with a definite article generally presupposes the existence of the identified object. To see an instance of presupposition in one of Bendix's verbs, I would like to say that sentence (57)

(57) A borrowed B from C at T

asserts (among other things) that A had B after T, but merely presupposes that C had B before T. If A did not have B (in some sense), at least for a while, after T, sentence (57) would be simply inappropriate.

To seek another example, the distinction I have in mind can be somewhat more richly illustrated in the following sentence:

(58) Bill doesn't even know that if he weren't in jail, he'd be assassinated within 24 hours.

The speaker of (58) assumes his audience to be surprised by what it is that Bill doesn't know (this is the effect of the even), the sentence presupposes that if he weren't in jail, Bill would be assassinated within 24 hours. (This is the effect of know.) It doesn't assert this, because the sentence is about Bill. The sentence further presupposes that Bill is now in jail. If Bill does not in fact know what the sentence says he does not know, the sentence is true; if he does know what the sentence denies he knows, the sentence is false. If any of the conditions presupposed by the sentence fails to hold, however, the sentence is merely not relevant.

The distinction will come up again in the comments on the meanings of the specific English verbs that we must examine. In semantic analysis, we must be aware of what a sentence asserts, what it implies, what it presupposes, and we must be able to distinguish all these from what it merely connotes.

#### 10. Other 'Tests'.

The 'semantic tests' which Bendix uses amount, as far as I can tell, to little more than the practice of juxtaposing sentences so that we will be reminded of the various uses of a word. The ways in which Bendix is willing to draw conclusions from his tests can be illustrated with, once again, the word give. The test demonstrates that certain putative properties of the verb are not in fact criterially associated with it.

One might have begun by assuming that (59)

(59) C gave B to A

requires the understanding that A had B in the first place, but (60)

(60) John gave Bill a black eye

shows that assumption to be false. One might have assumed that (59) implies that after C gave B to A, C no longer had B himself; but here sentence (61)



(61) John gave Bill the whooping cough  
shows that claim to be false too. If the two understandings suggested are valid in the case of a sentence like (62)

(62) John gave Bill his car keys  
that is because of our knowledge of what kinds of things car keys are, and that, in particular, car keys can be possessed only by one person at a time. The 'transfer-of-possession' aspect of our understanding of (62), in other words, is not contributed by the word give itself.

In this case, it might have been better to interpret give as a general causative verb that can be associated with various kinds of sentences whose main verb is have. The fact that John can give Bill the car keys, a black eye, and the whooping cough is then explained with reference to the knowledge that Bill can have these things. In effect, this is precisely what Bendix is saying, but he presents this as a semantic fact, when it is really purely a syntactic one. The main problem--still a syntactic one--is to distinguish those uses of have which do and those which do not lend themselves to embedding in causative constructions with give.

#### 11. The Definitions.

HAVE. Bendix describes the word have as having a general meaning and an inherent meaning, and both of these are related, in different ways, to expressions containing the verb be.

In the inherent meaning of have, an expression of the kind

(63) A has B

can often be paraphrased as

(64) C is A's B

where the genitive construction (and certain uses that are peculiar to it) is taken as basic. Formula (64) is exemplified by (65), which is taken to be the source of (66), a sentence exemplifying formula (63).

(65) C is John's son

(66) John has a son

However, there are many sentences of the type (63) where the 'inherent' relation is understood, but which do not allow a paraphrase as (64). Bendix chooses to derive both (63) and (64) from more abstract sources, where the components are given as follows:

(67) 'there is a relation between A and B' and  
'the relation is inherent'

Here it is not clear to me whether (67) is the definition of (63)-(64), or whether (67) is in some sense the underlying structure of the other constructions. In either case, one cannot avoid the impression that in the case of the so-called inherent sense of have, one is not dealing with a verbal meaning at all. The first set of examples that Bendix offers contains kinship terms like son, mother, uncle, certain other purely relational nouns such as friend, neighbor, and counterpart. It seems clear that in these cases it is nonsense to say that the verb have asserts a relation between two nouns as in (68)

(68) John has a friend

or that be has any such meaning at all in (69)

(69) Bill is John's friend

It seems rather to be the case that these nouns themselves express the relation. That is, a logical reformulation of a (69) is (70)

(70) Bill is-a-friend-to John

where the relation between the two objects named Bill and John happens to be expressed, not with a verb as is typically the case, but with a noun of a particular kind and requiring a particular grammatical construction. It happens to be among the syntactic facts of English that when both terms of the relation are identified (as in (69)), the genitive construction with be is used; when only one term is expressed and the mere existence of the relation is asserted (with the second term

'left bank'), the construction with have is used (as in (68)). To speak of 'inherence' in the kind of verbal relation expressed by have seems altogether to miss the point.

Other uses of the so-called 'inherent' have can be accounted for on purely syntactic grounds as well. This is true of nouns expressing a part-whole relation (nouns like leg, eye, end, roof) as well as nouns representing some property of an object used for naming some attribute of it (nouns like form, condition, texture, size). In other words, (71) and (72)

(71) the texture of this material is suitable

(72) this material has a suitable texture

are syntactically statable paraphrases, and any notion of 'inherence' is to be associated with the meaning of the noun, not with the meaning of have. The function of have, in this case as in many others, seems to be related to the subjectivalization of a particular noun-phrase--in this case the 'possessor' noun.<sup>7</sup>

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<sup>7</sup>For a further discussion of this matter, see the section entitled "The grammar of inalienable possession," in Fillmore (1968).

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Another function of have seems to be to make into a predicate (and thus to convert into a verbal expression) notions included only as nouns in their dictionary forms. In many cases synonymous expressions can be constructed using verbs, or adjectives with be. Have courage is synonymous with be courageous, have a look is synonymous with look, while an expression like have the measles seems to appear as a verb phrase only in this way.

It almost looks, in fact, as if both have and be are introduced exclusively by means of syntactic rules, and that to speak of either of these as capable of expressing meanings on their own is to be seriously confused about the general scope of semantic explanation.

Bendix's definition of the general meaning of 'have' is as follows:

- (73) A has B  $\dashrightarrow$  B is X A Y  
where: (i) X = (a) with  
or (b) for  
or (c) to + Verb (+Z)  
or (d) Locative Preposition (+Z)  
(ii) Y may be null

The rule is illustrated as follows:

- (74) This list has the name you want--  
The name you want is on this list.  
where: A = this list, B = the name you want,  
X = Locative Preposition = on, and Y is  
null

Notice that this paraphrase schema is offered as an explanation of the 'meaning' of A has B, not as a rule for converting sentences containing be into sentences containing have. Such a rule is admitted by Bendix to exist (and he states various aspects of it in an appendix on the topic transformation), but (73) is an expression of the general meaning of sentences with have, because the meaning of the have sentences is less definite than any of the paraphrase sentences with be. He would say, I take it, that a sentence like

- (75) This house has walls of the kind you like  
could be paraphrased as (76), (77), or (78)  
(76) There are walls of the kind you like in the  
rooms of this house  
(77) There are walls of the kind you like outside  
this house.  
(78) There are walls of the kind you like around  
this house.

and so on, and that the meaning of (75) is not ambiguous with respect to the various possible 'paraphrases', but it is simply general enough to include any of them. Thus the various

Conditions on rule (73) specify the range of the paraphrase set, not a set of distinct paraphrases by which A has B sentence may be said to be ambiguous.

Similarly, different understandings of a sentence like

(79) I have the book you want

are found in such differences in paraphrasability as seen in

(80) The book you want is in my library

and

(81) The book you want is in my hand.

Something is surely wrong here. We saw that for the inherent sense of have one does not need to speak of the 'meaning' of have at all but only of the meanings of the related nouns and the semantic effect of the syntactic relations which hold among them. For the general sense of have, however, it does not seem to be the case that the paraphrase set is in any sense conceptually prior to the uses of have; rather have is a verb which makes possible the topicalization of particular syntactically identified elements of sentences (in quite the way suggested by Bendix's topic transformation), and it also has an elliptical function. Moreover, there is an additional use of have, where it appears as a verb in its own right, and that is the use where it is more or less synonymous with possess. Notice, in this connection, how we generally understand a sentence like (82).

(82) I judge my friends according to what they are,  
not what they have.

Surely you would insist that I had misused my language if, on asserting (82), I then explained that what I meant was that the friends I value are rich and powerful, what they do not have is honesty and wisdom. The ways in which (82) is understood straight on must be accounted for, it seems to me, by claiming that the linguistic form have sometimes appears as a verb in its own right, and when it does it has a meaning semantically related to that of possess.

Having said this, it is now difficult to go on, because the words Bendix examines are words which require mention of have in their definitions. We can at least note that the cases can be divided into two: those where the relationship is syntactic and relates to (partly) the same syntactic conditions as those which result in have, or those where the relationship is semantic and is intended with have in the possess sense. The verb give is of the former type, lend of the latter type. Let us now turn to some examples.

FIND. Bendix defines (83) as (84),

(83) A finds B

(84) 'B an- $R_h$  a-D' and 'chance causes (B an- $R_h$  A)'

by which symbolism he means that first there is some prior have-relation between B and something else (what that something else is is irrelevant to the concept at hand, and so nothing more is said about D) and then, by chance, there comes about a have-relation between B and A. I would suggest that the word find is one which is not related to anything peculiar to have at all, and that the use of find with an ordinary direct object is to be considered an extension of its use as an embedding-verb.

Basically (85) is equivalent to (86),

(85) A finds S at T

(86) A perceives S at T

where S is a be sentence. Just in case the sentence is in a progressive form, transformations operate to give us such sentences as

(87) John found his mother stealing chickens

if S is a predicate sentence of a particular kind, we get

(88) John found his bride quite adept

(89) they found him without any clothes on

(90) they found him in the ditch

I assume for the use of find with just a direct object that

there is in the underlying sentence an indefinite locative phrase which can get deleted, so that a sentence like (91) is more or less semantically equivalent to (92).

(91) John found his boots

(92) John found his boots somewhere

The fact that in some cases the associated S has modes of expression using 'have' appears to be a coincidence. We can say (93) as well as (94), or (95) as well as (96)

(93) John found a solution to the problem

(94) the problem has a solution

(95) John found the umbrella behind the sofa

(96) the sofa has an umbrella behind it

but that is because some of the same sentences that can appear as complement to find are sentences that permit topicalization. There seems very little gained in saying of John, the problem, and its solution in (93) that first there was a 'have' relation between the solution and the problem, later there came about (by chance) a have-relation between John and the solution; or in (95) that at first there was a have-relation between the sofa and the umbrella (expressed in (96)) and later there came about a have-relation between John and the umbrella; and most emphatically, it seems inappropriate to say that in (91) there was first a have-relation between somewhere and the boots, and then there came about a have-relation between John and those boots. Statement of the semantic relations becomes so thoroughly formal, that we are forced to recognize the relations as being syntactic only.

GET FOR. Bendix defines (97) as (98)

(97) C gets A B

(98) 'B an-R<sub>n</sub> a-D' and 'C causes (B is for A)'

by which he means that there is some prior have-relation between B and something else, and C causes B to be 'for' A. Notice that here, instead of questioning the relevance to this situation of

the primitive notion 'cause', Bendix chose to create a new underlying relation, expressed here as 'B is for A'. He says of this relation (on p. 71)

For seems to express some sort of purpose of futurity-- that 'A' will have 'B'. By using 'B is for A', we thus account for the noncriterial rank of 'A has B', which is only a connotation here, in contrast to the case of C gives A B.

What is important here, of course, is that C intended A to have B. I would therefore define (99) as (100).

- (99) C gets B for A at T
- (100) C causes (C gets B at T) and  
C intends (C gives B to A at some t after T)

LEND and BORROW. Bendix defines (101) as (102),

- (101) C lends A B
- (102) 'B an- $R_h$  C' and 'B not-is A's' and  
'C causes ([B an- $R_h$  A] and [B not-changes to  
(B is A's)])'

by which he means that there is a prior have-relation between B and C, that B does not belong to A, that C causes there to be some 'have' relation between B and A, and that while B did not belong to A before this took place, it still doesn't belong to A after this takes place.

It seems to me that ascribing the 'cause' to the lender with lend and to the borrower with borrow is not a criterial aspect of these words at all. What seems to be involved is an agreement on the part of borrower and lender. The difference between lend and borrow seems entirely to be a difference in the elements that can be omitted. Thus I would define (103) as (104),

- (103) C lends B to A at T
- (104) 'A gets B at T', and 'A is obliged (A gives B  
to C at some time later than T)'



In fact, then, I would define (105) in exactly the same way.

(105) A borrows B from C at T.

TAKE FROM. Bendix defines (106) as (107),

(106) A takes B from C

(107) 'B an- $R_h$  C' and 'A causes (B an- $R_h$  A)'

by which he means that there is a prior have-relation between B and C and A does something which brings about a have-relation between B and A. I would define (108) as (109).

(108) A takes B from C at T

(109) A causes (A gets B at T)

Presupposition: C had B before T

I would say that the latter is presupposed, merely, and that it is not part of the information that one would directly communicate to someone by means of this sentence, because the presupposition is unaffected by sentence negation. That is, sentence (110) presupposes, just as much as does (111) that the children first had some candy.

(110) I didn't take any candy from the children

(111) I took some candy from the children

The having of candy on the part of the children is a condition which must be present in order for it to be relevant to say whether I did or did not take the candy away from them. If this were an aspect of the asserted meaning of (108), it would be denied under negation.

## 12. Summary.

My review of Bendix's monograph has been long, and it has been largely negative. It has been long because Bendix's discussion deals relevantly and appealingly with extremely crucial issues in semantic theory, and I could not resist going over them myself. If it has been negative it is because Bendix's proposals are specific enough to be wrong and insightful enough to be interestingly wrong.

I have criticized his definitions in his own terms, though I tend to feel that in the end semantic descriptions of lexical items will be based on rather different principles than those Bendix has assumed. In particular I believe that a theory about the presuppositional level of linguistic communication is a prerequisite to any full-blown theory of semantic structure, and I am convinced that we need a semantic theory that is much more clearly related to syntactic facts than Bendix has suggested. If I had reasonably sound and coherent views on the nature of this improved lexical and semantic theory, my review would be longer still. There are many excellent scattered essays in the linguistic and philosophical literature on the semantic structure of individual words,<sup>8</sup> but I am convinced that for the range of

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<sup>8</sup>For samples of the best of this work in the linguistic literature, see the recent work of Jeffrey S. Gruber, especially Gruber (1967).

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material covered in this study, Bendix's monograph is the best we have.

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