On Generativity*

Charles J. Fillmore

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1. For some time I have been striving to understand just exactly what it takes for something to be a generative grammar. The nature of my concern with this question is not that of a meta-theoretician within the discipline, nor that of a philosopher of science looking at our field from the outside; it is rather that of an easily confused Ordinary Working Grammarian who is trying to be minimally clear about what it is that he is doing.

The ordinary working grammarian of whom I speak has fairly special and fairly limited ways of troubling himself with the problems I will be discussing, and he has special and limited reasons for being pleased or displeased with a theory. For example, when the ordinary working grammarian is told that a generative grammar of a language is a recursive device which demarcates exhaustively and exclusively the unlimitedly large set of sentences in the language, what that means to him is that the theory gives him a test for knowing whether what he has done, in describing a certain language, has been successful: if he discovers sentences in the language which his grammar fails to recognize, or if he notices sequences which his grammar allows but the language does not, then he knows that his efforts have fallen short of complete success.

If the ordinary working grammarian is told that he can capture generalizations that would otherwise escape him only by adopting a particular notation or a particular set of conventions regarding the form and interpretation of grammatical rules, what that means to him is that the grammatical descriptions he writes should be simpler if he uses these notations and conventions than if he does not, and that grammars written by people who adhere to the same conventions will be interpretable to him.

Further, when the ordinary working grammarian is told that the model of grammar with which he should work must contain in its notation or in an auxiliary set of conventions a body of assumptions about language universals, he is willing to accept this, not so much because he is pleased that in this way the theory abstracts properties of the basic human psychic apparatus

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for language out of the cultural diversity of individual languages, but because this decision makes it possible for him not to have to remember all the things he believes to be true about language in general: to the extent that his beliefs about language universals are embedded in the notations he uses, he will always know when to be surprised by new evidence which contradicts one or another of these beliefs. He knows that when he encounters linguistic facts which he cannot articulate with the notational and conceptual apparatus at his disposal, he has correctly detected a crisis in the theory and is now in a position to revise his beliefs about language.

Our grammarian, we have seen, is essentially lazy, and, indeed, almost 'practical' in his views about what theories are for.

I am going to claim that the ordinary working grammarian is confused about what it takes for something to be a generative grammar. Before I go on to explain myself, I must report immediately that we do not find him guilty of the much-discussed confusion between 'generate' as a stative verb used to relate a grammar and the sentences of the language it is a grammar of, and 'generate' as an active verb used of a human being and the utterances he produces. The ordinary working grammarian knows and is careful about these distinctions.[1]

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[1]It is not so easy to keep these notions distinct in one's unconscious, I must admit. I continually find that I am attracted to what is called 'generative semantics' or back again to 'interpretive semantics' depending on whether I have recently been more impressed with my experiences of wanting to say things I do not know how to express, or with my experiences of having said things which I cannot understand. In the former mood I am convinced that the mechanism inside me for constructing well-formed messages is intact, and that what is malfunctioning is the component which maps messages into utterances; when I am in the latter state I feel that the mechanism for producing grammatical sentences is intact, and that what is defective is the apparatus for assigning meanings to them.

I must also explain, before I go on, that the ordinary working grammarian I have in mind finds himself fairly solidly within the generativist camp. His doubts about generative grammar do not arise from any assumptions about the superiority of the research goals of the taxonomists or distributionists of a decade or two ago. To him, the data do not determine the conceptual base of the theory; they constitute, rather, the phenomena which the theory has to explain. And this was something he learned from the generativists.

For the sake of the younger reader, let me interpret my allusions. I am old enough to remember the days when, as a typical

classroom demonstration of analytic procedures in linguistics, the professor presented a pair of linguistic forms, demonstrated on the basis of the distribution of their constituent elements that they are analogously constructed, and then continued by pointing out that their external distribution shows them to be distinct. I contribute the following examples for illustration: the pair 'maternity dress' and 'paternity suit'. It is easy to believe that there are distributional parallels in English-language texts between 'maternity' and 'paternity', and that the distributional properties of 'dress' and 'suit' are analogous. However, on examining the external distribution of the two-word expressions, we would discover that they are in fact quite distinct, in that they occur in vastly unlike total context sets. Some of my teachers took the trouble to say that when a linguist claims that two forms are grammatically distinct, all he means, in fact, is that their total context sets are distinct.

Today reasonable people are much more likely to say that there is something about what these expressions <u>are</u> which accounts for their different distributions, rather than the other way around; and such reasonable people might be said to be taking the generativist position. To the challenge that these two ways of talking about the facts amount to the same thing, I reply that in the development of a generative description, one would notice the internal similarity of 'maternity dress' and 'paternity suit' only by accident; in the development of a distributionist account, the comparison of these forms is a necessary step in their individual description.

2. My topic, then, is the way in which a 'generative' linguist conceives the relation between a grammar and the objects which the grammar is designed to identify and describe, i.e., the 'grammatical' sentences of the language in question.

In the earliest discussions of generative grammars, a comparison was suggested between writing a grammar and specifying the set of well-formed formulas in a mathematical system. In Chomsky (1957, p. 13) we read, "The fundamental aim in the linguistic analysis of a language L is to separate the 'grammatical' sequences which are sentences of L from the 'ungrammatical' sequences which are not sentences of L and to study the structure of the grammatical sequences. The grammar of L will thus be a device that generates all of the grammatical sequences of L and none of the ungrammatical ones." A generative grammar recognizes certain strings of symbols as well-formed sentences in the language, but not others, much in the manner of the formation rules in a mathematical system.

This function of a grammar is interpretable as being identical to one of the unarticulated goals of the traditional grammarians, the difference being that a generative grammar is one in which the characterization of the totality of well-formed sentences is made explicit. To mention an aspect of such a suggestion which comes quickly to mind, it seems quite likely that some traditional grammarians, and many classroom grammarians, may indeed have been

willing to think of a grammar as analogous to the system of formation rules in a mathematical system--that is, in the quite literal sense that in both cases the rules were devised by wise and rational creators, for the creators' own purposes, and that the admission or rejection of a presented formula or sentence was to depend on whether or not it was in conformity with these independently valued rules. A mathematical system and a system of grammatical rules upheld by proponents of the doctrine of correctness are both, after all, man-made.

Explicit generative grammars appeared on the scene, fortunately, at a time when the question of the membership of a sentence in a language was taken as an empirical issue. On the de facto, as opposed to the de jure, theory of grammaticality, the speaker is the source of the language, and a successful generative grammar is one which conforms in its predictions to certain kinds of judgments made by speakers of a language about the sentences in their language. A proposed grammar can be shown to be incorrect by a demonstration that the set of sentences in the language is not the same as the set of sentences recognized by the grammar.

That, at least, was the goal which grammarians learned to set for themselves. In the face of this first requirement, it is clear that what the ordinary working grammarian needs to find out is the identity of the set of de facto grammatical sentences, and what he needs to figure out is whether the grammar he constructs puts the good sentences in and rules the bad ones out. We will see soon that this requirement is a difficult one.

In addition to the requirement that a grammar identify each of the grammatical sentences of the language, the concept of generative grammar comprises the further condition that it associate with each of the sentences it generates a structural description--a display of all of the grammatical information about the sentence which the speakers of the language can be said to possess. Our first two requirements are phrased in Katz (1966. p. 123) as follows: "the rules of a linguistic description must not only be capable of producing an infinite list of formal objects, but the formal objects on the list must be the sentences of the language under study and the list must exclude any string in the vocabulary of the language that is not a sentence in the language. Furthermore, these rules must somehow specify all the information about the sentences that a speaker utilizes to produce and understand them."

The second requirement does not commit us to anything new in the actual workings of a grammar. The very rules which play a part in the successful generation of the sentences of the language can be used, via a structure-assigning algorithm taken to be part of linguistic theory, to provide the correct structural descriptions. As stated in Thorne (1968, p. 302), "The set of rules involved in the generation of a sentence is equivalent to an analysis of it."

With the concept of generative grammars thus elaborated to contain the notion 'correct structural description', the relation between grammar and the set of linguistic objects it generates is subtler than was apparent at first. The native-speaker judgments

to which the analyst needs to appeal for convincing himself that his work is adequate involve not only acceptance or rejection of sentences, but also assent to various kinds of assertions about the sentences that are accepted.

Our ordinary working grammarian looks at this new responsibility and sees two problems: first, whether he can determine what the correct structural descriptions of the sentences in the languages are, and second, whether the rules needed for generating the sentences in the first sense are indeed precisely those which will succeed in assigning correct structural descriptions. The ordinary working grammarian worries, in other words, about whether there is really a definitional relation between a description of everything speakers know about the sentences of their language and grammatical rules of the type he has learned.

From the beginning, but only with seriousness in work later than Chomsky (1957), the concept of generative grammar has been further enriched by the requirement that it be capable of ranking sentences along a dimension ranging from the fully grammatical to the totally unstructured. It was apparently believed by Chomsky that for this new role there need be no new requirements on the form and operation of the generative apparatus itself. In Chomsky and Miller (1963, p. 291) we read that a generative grammar, defined as a device which enumerates the grammatical sentences of a language and which assigns structural descriptions to each of these, may also be regarded as a device which assigns to any string presented to it a relative-grammaticality index. What is needed, apparently, is some system of conventions which governs the way in which the structure-assigning apparatus is to be consulted for determining, for any non-sentence, its degree of departure from full grammaticality.

The ordinary working grammarian, confronting this added responsibility, sees now three things to worry about. The first is whether he or anyone he trusts knows how to rank sentences according to their degree of deviation from full grammaticality; the second is whether there is a general way of determining, from the rules of the grammar, a ranking of sentences which conforms to these judgments. His third problem is that he fails to understand why knowing what is wrong with each of two sentences should entail knowing whether one of them is worse off than the other.

One final enrichment of the concept of generative grammar is found in the view that a grammar which a grammarian constructs is a claim about something which speakers of the language have inside their skins and which makes them able to produce and comprehend the sentences, and many of the near-sentences, of their language (see Chomsky (1965, pp. 3-9)). With this addition the study of grammar takes on a new interest and importance, naturally, but with this addition one finds it particularly difficult to imagine in advance the precise nature of criteria for success. It will be my conclusion, nevertheless, that the most intelligible view of grammatical research sees it as the attempt to discover the internal rules which account for the rule-guided aspect of human linguistic abilities.

3. The most simply conceived goal of a generative grammar, to go back to the beginning, is that of determining, for any sequence of elements in the vocabulary of the language, whether it is grammatical or ungrammatical.

The details of the technical side of this task are of little real interest to the ordinary working grammarian. He knows that to the extent that any genuine generative grammar is an effective theory, it will always be possible to tell, if a sentence is generated by the grammar, that it is generated by the grammar: one tries out the rules, using whatever heuristic one has at hand, until one finds the sentence in question, and declares that it is in. There is, to be sure, another issue--that of knowing for certain that a presented string is ungrammatical according to the grammar--but that question is related to subtle properties of grammars that are of little concern to the ordinary working grammarian. He is willing to assume that an interpreter of a generative grammar, given wit, luck and patience, will be able to find out one way or another whether a given sentence is in or out.

What does concern him is the non-technical problem of knowing whether the sentences that get in are the good ones and whether the sentences that get left out are the bad ones--whether, in other words, the grammar and the speakers make the same choices. He sees this as a problem because he knows that judgments about grammaticality are subject to all sorts of confusions between grammaticality and significance, acceptability or intelligibility; he knows that even when speakers say they understand that they are to make judgments about grammaticality rather than these other things, they still disagree; he knows that sometimes people change their minds about whether a sentence is grammatical; and he finds appeals to unending idiolectal variation somewhat unsatisfying.

There was a time when these uncertainties would not have bothered our grammarian: a decade ago there was little reason to doubt the Clear Cases Principle proclaimed in Chomsky (1957, pp. 13-14). On this principle, native-speaker judgments are criteria of grammar-constructing success only with respect to the clear cases. The grammarian begins by considering sentences like "I like ice-cream" that are clearly grammatical and sequences like "Ice-cream me the" that are clearly ungrammatical, and he constructs the simplest grammar which generates all the incontrovertibly grammatical sentences and fails to generate all the incontrovertibly ungrammatical sentences. The grammar, then, and not the grammarian, makes the decision about the unclear cases.

Today's grammarian finds little comfort in this principle, because he knows, if he has read Ross's thesis (Ross 1967), that the kinds of arguments that seem to bear very crucially on the nature and operation of syntactic systems involve him in grammaticality decisions that are extremely difficult to make. If he has seen the Elliot, Legum and Thompson (1969) studies of speech variation, he knows that properties of grammars and sentence configurations figure importantly in the description of idiolectal and stylistic differences, but not at all in a way that gives any primacy to a simple distinction between being in the language or out, being generated or not generated by the grammar.

The simplest criterion of success, which was to consist of checking the identity between being 'in the language' and being 'generated by the grammar', does not do, in short, what our ordinary working grammarian had hoped it would do for him.

4. But let us turn to another problem, that of designing a grammar capable of assigning degrees of grammaticalness. Chomsky's theory of relative grammaticality (see Chomsky 1965, pp. 148-154) takes roughly the following form. The grammar generates the set of fully grammatical sentences in a more or less straightforward way. For a string of words not found among the fully grammatical sentences, its degree of deviation from full grammaticality can be computed by comparing it with the grammatical sentences to which it is in some ways similar.

The procedure may be thought of as including something like the following steps. For each deviant string one identifies the set of sentences maximally similar to it. One identifies the properties which the deviant and the grammatical sentences have in common and in doing that one isolates just those properties which are 'out of place'. If an 'out-of-place' element is a constituent of a major category not found in that position in the grammatical sentences, the deviation is particularly serious--we may say that the string loses three points. Where an out-of-place element is of an appropriate category but has grammatical properties not found in that position in any of the fully grammatical sentences, the deviation is of minimal seriousness--the string loses one point. Where an out-of-place element is of an appropriate major category according to part of its context but requires ordinarily a categorial environment of a type not found in the string in question, the offense is of medium seriousness--the string loses two points. The degree of deviance of the string as a whole might be registered, in the most simple-minded rendering of this procedure, as the sum of the values of these various offenses.

The deviance-computing procedure I have just sketched, as well as subtler variations on it, has to be based on the assumption that it is in principle possible to identify, for a deviant string, just those lexical items or features which are out of place, or just those orderings of elements which are inappropriate. Even if we agree to allow multiple ways of recognizing the out-of-place elements--that is, even if we are willing to record certain strings as ambiguously deviant--we still must face the ill-defined problem of determining which portion of a deviant string provides the framework within which the rest can be described as out of place.

For any attempt to deal with this task, we have to distinguish between a deviant string of words taken in the abstract and a deviant or mistaken utterance. We will find for the former that there is simply no possibility of determining in any absolute way its degree of departure from full grammaticality. In the latter case, an account of deviant utterances must take two cases into account: mistakes, as in the speech performances of children,

drunkards and foreigners (and the rest of us when we are off our guard), where what is of interest is a comparison between what was intended and what was said; and figurative speech, where what is of interest is the structural type which the speaker wants the hearer to perceive as the framework upon which the hearer's 'construing' abilities can impose some sort of interpretation--hopefully the intended interpretation.

To see what is involved for strings of words considered in vacuo, we can take the most favorable case --that of strings which happen to be identical to sentences generated by a grammar which differs in minor ways from the grammar which provides the measure. Suppose, for example, that we wish to say something about the sentences produced by a speaker of a nonstandard dialect of English and suppose that we wish to determine whether it makes sense to talk about the degree of deviation of his sentences from those of the standard dialect.

Taking the single sentence (1), what we need to know first of all is whether it is to be compared with (2) in the standard dialect or with (3).

(1) I seen it.
(2) I have seen it.
(3) I saw it.

Depending on which of these is taken to be the basis of comparison, the sentence is deviant either by virtue of an omission or by virtue of a substitution. If the index we need is something which grades strings of words along the grammaticality dimension, it must be a meaningful question to ask whether the string comes out as more ungrammatical under one of these interpretations than under the other, and it must likewise make sense to ask whether the intuitions of native speakers of the standard dialect can be called on to decide which interpretation is correct. Such inquiry, surely, does not lead to an understanding of where (1) fails with respect to the standard dialect, and we are motivated to look for other kinds of information to tell us this.

Of course, in order to know which comparison is the 'right' one, we need to know whether the rules of the dialect from which we have taken our sample allow the perfect auxiliary 'have' to be contracted to zero (where the standard dialect requires retention of the final fricative), or whether these rules specify 'seen' as the preterite form of 'see'. In case the source dialect has nothing corresponding to the standard dialect contrast between (2) and (3), our problem is more serious still: are we to say that the dialect has only the perfect form, with the auxiliary deleted; that it has only the preterite form, realized phonologically as 'seen'; or that, having the two constructions distinct at some level of analysis, the grammar neutralizes them in surface sentences? The answers to these questions involve detailed comparison of the grammatical rules of the separate dialects, but can in no meaningful way, as far as I can tell, be expressed as information about (1) as viewed from the standard dialect.

With (1) we have the simplest possible case, and yet there were these uncertainties. The situation with random word sequences is totally beyond hope. That becomes obvious as soon as we realize that the possibilities available for matching any one of these with a set of grammatical sentences include the operations of order change, insertion, deletion or replacement of elements, and unrestricted combinations of these.

For utterances that are deviant by mistake, the relevant comparison is between the actual utterance and the intended utterance, but in this case, (i) it is not always possible to know what the intended utterance is, and (ii) it does not matter whether the actual occurring utterance is, in the abstract, grammatical or not.

What is needed is some apparatus for pairing any strings of words with any structural description, and providing some index of the degree of fit between the description and the string, the value of this index determined by an operation which relates the lexical information associated with the individual words of the string with the structural description. Such a device is what we find elaborated in Lakoff (1965). By Lakoff's procedure, any string will have an indefinitely large number of grammaticality values according to the infinite number of structural descriptions that can be brought into association with it. For a fully grammatical sentence there will be at least one structural description which it satisfies completely. An ambiguous grammatical sentence will show perfect fit with two or more structural descriptions--one for each of its possible interpretations. Working out the details requires giving different weight to distinct types of 'poor fit'. All such decisions will involve appeals to native-speaker judgments of some sort, but technically the thing seems feasible.

But notice what happens to our understanding of the working of a generative grammar when we adopt Lakoff's device. The syntactic component specifies the set of well-formed structural descriptions. The dictionary component associates with each lexical item a set of syntactic, semantic, and phonological properties, the syntactic properties understood as including information about insertability into deep-structure configurations and sensitivity to grammatical rules. The relative grammaticality algorithm automatically assigns a grammaticality index to each ordered pair in which the first element is a sequence of lexical items and the second is a structural description.

Under Lakoff's proposal a generative grammar can do what I think Chomsky suggested a generative grammar ought to do, i.e., serve as a grammaticality-index assigning mechanism. But the whole thing depends crucially on having correct information about the lexical items of the language. How are we to discover, our ordinary working grammarian asks, what are the correct lexical properties of the words and morphemes of a language? Can it be, he frets, that the difficulties of knowing correctly the grammar and semantics of lexical items are of the same order of magnitude as those of determining the grammaticality of sentences?

These worries of his are, I think, justified. Presumably, we are to determine the grammatical properties of lexical items by comparing deviant with non-deviant uses of them. We know that 'resemble' is unpassivizable, for example, because speakers of English tell us that while (4) is grammatical, (5) is not.

(4) John resembles a horse.
(5) A horse is resembled by John.

But, in fact, there are some speakers of English who tell us that the passive sentence is not ungrammatical. That means that when we observe a seemingly deviant use of a lexical item we must ask whether this usage constitutes a departure from conventions provided by that speaker's language, whether the speaker's language differs in relevant ways from the language we have been considering, or whether his judgments on grammaticality are sometimes inaccurate. In other words, we must be able to ask whether the speaker regularly uses the word in ways of which the observed usage is an instance, or whether in this situation he made a mistake.

Two examples will demonstrate the difficulty in knowing what the facts are. The first is an elementary case of figurative speech. While it is certainly possible to come up with clear cases, it is frequently in practice impossible to know, even in one's own speech, whether a word has been used figuratively, in the creative sense, or whether it is simply polysemous in the needed way. The use of the word 'bitch' in referring to an unpleasant adult female human was clearly figurative in its first instance, but when we find people who hesitate to use the word when speaking of a female dog, it is apparent that for them the insulting sense of the word involves no appeal to their creative abilities. A description of this state of affairs in terms of the marking of deviance would run like this: somebody whose lexicon contains only the literal interpretation of the noun but who is observed to use it nevertheless when referring to human beings has made a creative extension of the scope of the word that is accounted for by reference to the knowledge that participants in our civilization use attributions to human beings of non-human animal properties for pejoration; somebody who does not use the word when referring to female dogs lacks the original sense and has a lexical entry for 'bitch' with the pejorative sense built in rather than acquired by a construal principle.

Unfortunately, an empirically indistinguishable account is found in the claim that some speakers have two descriptions of the word, others only one. On this interpretation, the acquisition of the non-literal sense is an event in the history of the language. I know of no reasonable proposals for evaluating these alternative accounts.

For a second example, I turn to the fact that some speakers of English do not use 'convince' in the same ways they use 'persuade'. They allow themselves to say (6) but not (7).

(6) We persuaded him to come.
(7) We convinced him to come.

Suppose, knowing that, we hear our informant say (7). We may say that his internal grammar makes the distinction just mentioned, but that he has generalized the infinitive complement construction to the verb 'convince' this one time; or that he is in the process of acquiring the more generalized rule; or that he was imitating speakers of a lesser dialect; or that he mistakenly produced this utterance by choosing the word 'convince' when he intended 'persuade'; or, of course, we might simply say that in his lexicon 'convince' and 'persuade' are given, apart from their phonology, identical descriptions.

There are, then, uncertainties about the proper way of interpreting apparently different uses of lexical items and uncertainties about the accessibility of correct lexical information in general. Appeals to introspection, the compilation of questionnaire results, and claims about idiolectal variation seem not always to point to the truth. Grammatical theory needs instead to consider deviance marking as a precise formal problem, and this it can do by applying to lexical descriptions something akin to Lakoff's proposal for computing relative grammaticality. The lexicon is a device which characterizes well-formed lexical entries but fails to associate phonological material (i.e., 'lexical items') with lexical descriptions. Grammatical theory can now be thought of as providing a way of registering the degree of grammaticality of word strings with respect to structural descriptions if the lexical descriptions of the words are known. This is accomplished by associating any sequence of clusters of lexical features--minus the phonological content--with any structural description. The grammar is able to assign indices of relative grammaticality, but only to ordered pairs of lexical description sequences and structural descriptions. The grammar says, in effect: if you can find strings of words that have such-and-such properties, then I can tell you exactly how well they fit any structural description.

If this is what a generative grammar is to do, it has managed to get as far as possible from its initial goal of specifying the well-formed sequences of words. The fact is, of course, that when we took this step we completely lost the attention and interest of our ordinary working grammarian. He wants to know just what these deviance markings are for, and he has serious doubts about whether the speaker's intuitive judgments on grammatically deviant sentences can be accounted for in general in terms of misordering errors and category substitutions of the sort he sees this device capable of detecting. Our grammarian knows first of all that the construal principles for a great many instances of metaphor involve understandings about objects and events rather than properties of the linguistic elements which give expression to these objects and events. More than that, he can think of many cases of what he insists on considering deviant uses of language but which cannot be described by any of the grammar-bound plans for characterizing that have been proposed.

I have in mind a situation like the following. Journalists these days have been made conscious of the jeopardy to justice (or at least the danger of a libel suit) that results from public assignment of guilt to their fellow citizens. They have been instructed to heed certain rules of thumb that are supposed to keep them out of trouble, and among these, I assume, are the following: "Never say of a person who committed a crime that he did it, only that he allegedly did it." "Never call the person who committed the crime the culprit, or the murderer, or the burglar, until after the trial; call him instead the suspect."

As a result of sincere obedience to these injunctions, journalists (perhaps most noticeably in Columbus, Ohio) have acquired odd uses of the adverb 'allegedly' and the noun 'suspect'. Recently I heard on the evening television news in Columbus:

(8) Six members of the Students for a Democratic Society were charged with allegedly distributing inflammatory literature.

(I am assuming, incidentally, that they were charged with actually distributing inflammatory literature; if they were only charged with allegedly doing this, then they were surely guilty, and my point is lost.) In a report on the burglary of a milk store in my city, the local evening newspaper reported that

(9) The police have no clues as to the identity of the suspect.

There was of course no suspect: they had no clues on the identity of the burglar.

These are assuredly deviant uses of the words in question, and I believe they would be recognized as such by their authors if they had had time to edit what they had written. But it seems to me that a correct description of the nature of the deviance is not the sort of thing that can be provided by a generative grammar rigged to assign grammaticality indices. I may be wrong, but I find it difficult to imagine how such an algorithm could successfully mark the two sentences I came across as being more acceptable in journalese than such technically equally odd sentences as (10) or (11).

(10) He wanted the children to allegedly rob the flower-girl.
(11) I hope no suspect burns our house down while we're on vacation.

The deviant uses I have been discussing simply do not involve category errors of familiar kinds.

Uncertainties about the ways in which lexical items figure in the operation of a deviance-marking apparatus brings one face to face with the question of analogy in speech behavior. Although I have agreed with and once contributed to the body of unkind words

people have directed toward a little book called State of the Art (Hockett, 1968), I find myself convinced that in the description of changes in the lexicon, the appeal to changes in the content of grammatical rules faces a number of serious difficulties. Consider the recent popularity of event nouns used in the context of social protest in which the first element is a verb and the second element is the preposition 'in', as in 'sit-in', 'love-in', etc. I believe I am correct in my understanding that 'sit-in' was the first of these. The ordinary working grammarian in me wonders how we are to describe what happened when 'sit-in' became a part of the English lexicon. Were there changes in the derivational rules of the language? Was it registered as an unanalyzed lexical item? Or what?

If 'sit-in' entered the language as an unanalyzed lexical item, then it had no influence on the rules, since only generative rules assign structural descriptions. If the word did have an analysis, then there either must be some supplementary apparatus for assigning structure to lexical items, or it must be taken as being generated by a possibly newly created generative rule.

Suppose we take this last position, since it is the only one that is intelligible within the framework of generative grammar. What is the nature of this newly created rule? If the rule is stated as one which takes any verb, shall we say that 'sit' was marked, for a while, as the only verb to which it could apply? Shall be say that the scope of the rule was perfectly general, and merely observe as a fact about the history of usage that nobody bothered to use it for anything but the verb 'sit' for the first few months after the introduction of the rule? (If the answer to this second question is yes, then we must understand the occurrence of the later words in the way that we understand the constructibility of novel sentences.)

But if the original rule was an exceptional one, applying only to 'sit', then what are we to say about such later additions as 'wade-in', 'pray-in' and 'strip-in'? Are we to say that at the later stage the rule became generalized so as to include any verb, or any of a certain type of verb, or are we to say that the grammar became more complicated by virtue of having the relevant exception features added to the verbs 'wade', 'pray', 'love' and the rest? If we accept that the rule was originally general enough to include any verb, in some strict sense of 'verb', was it in fact general enough to include the later hippy creation 'be-in'? If not, with the extension to 'be' are we to say that the rule was further generalized or that it was made more specific so as to include 'be'?

These are all, quite obviously, senseless questions. It would never occur to anyone today to line up all these alternatives and to worry seriously about which is to be preferred, if only because we remember how silly certain older works seem in which we are taught five alternative analyses of the word 'took'. We have here one of those cases where we might indeed agree to say, with Hockett, that somebody made up a word, the word caught on, other people apprehended a pattern and made up some new words on the same pattern. A reconstruction of this history in the form

of a sequence of changes in the systems of generative rules would strike the ordinary working grammarian as nothing more than allegiance to a ritual form. However we eventually manage to deal with descriptive problems of this sort, it is at least very clear that in none of this inquiry would it have been of any help to have available to us a metric of relative grammaticality.

5. I have said that it is difficult to see how a generative grammar can be required to demarcate all and only the grammatical sentences of a language in view of some rather serious questions about the empirical determinability of that set; and I have said that it is impossible to imagine any way in which a generative grammar can assign grammaticality indices to deviant sentences. I turn now to a brief consideration of the ways in which a grammar assigns structural descriptions to the sentences which it generates.

The theory of transformational grammar makes available for structural descriptions of sentences (i) the categories of the base rules, (ii) the domination relations that are defined initially by the rules of the base and are adjusted by the transformations, (iii) the left-to-right sequence of elements, (iv) information about permitted co-occurrences in particular structures and (v) information found in the lexicon regarding (a) insertability into deep-structure configurations, (b) sensitivity to grammatical rules, and (c) the semantic structure of lexical items. A grammar is judged as adequate in one important respect if it describes sentences in ways which match certain sorts of intuitive judgments on the part of native speakers, if it captures certain aspects of their knowledge about the sentences.

One specific descriptive problem, ordinarily taken to be the easiest, is that of knowing whether a grammar gives the correct constituent-structure analysis to the surface sentence. Considering the variety of ways in which complex verbal expressions in English get parsed, I am ready to assume that native-speaker intuitions about constituent structure are among the least important criteria for judging the adequacy of proposed descriptions.

But it is also likely that there are a great many facts about the grammatical interpretation of sentences which the devices of categories and sequence and domination fail to capture altogether, yet which must be a part of the generative grammarian's added burden if the goal of achieving descriptive adequacy is to be seriously sought after. I have in mind a number of descriptive problems connected with the treatment of focus, topicalization, reference, deep structure cases, presuppositions, and illocutionary act potential. The brute force method of incorporating all these matters into the theory is by letting assertions about them find their place in proposed underlying structures for sentences. The people called generative semanticists have been accumulating reasons according to which the underlying linguistic structure of the sentence

(12) Did I give you the other book?

will ultimately have to be something which, when rendered into English, would sound like this:

> (13) There is a set of books that both you and I know about and the cardinality of that set is some number n and you and I have just had in mind a subset containing n-1 of those books and I am now calling your attention to the remaining nth book. There was a time when I had that book in my possession and I am now asking you to tell me whether I did anything in the past which would count as causing that book to be in your possession.

The speech act function of the sentence is made explicit in the part about the speaker's requesting an answer from the hearer; the presuppositions are captured in the clauses preceding the operative clause; the category of definiteness is reconstructed as a set of assumptions about what the speaker believes the hearer to be 'having in mind'; and so on.

When the ordinary working grammarian sees such demonstrations, he is properly overwhelmed, but he has trouble believing that the principles by which these maximally abstract representations are to be mapped into the sentences of his language are principles that today's grammarians are equipped to discover. He feels, in fact, that he finds himself in the age of what we might call the New Taxonomy, an era of a new and exuberant cataloguing of the enormous range of facts that linguists need eventually to find theories to deal with. The attempt to capture fully the native speaker's intuitions about the structure and content of his sentences has led to observations which make it extremely difficult to believe in the simple and comforting things we believed in, about grammatical theory, just a few years ago.

6. I see in much recent work a shift of interest away from the properties of an apparatus needed solely for generating the proper set of sentences, toward the mechanisms which speakers of a language can be shown to have, on the basis of any evidence within reach, which account for their ability to do what they do when they communicate with each other using their language. This switch of emphasis to the system itself, and away from the in-or-out judgments associated with the strict notion of generative grammar, makes it possible to ask new kinds of questions. Let me give an example of what I mean.

When grammar-construction is seen as a purely formal task, one of the desiderata of a grammar must be its completeness. In evaluating a grammar which is to generate all and only the sentences of a language, we cannot tolerate a situation in which symbols are introduced at one point and never interpreted or operated on by later rules. It is possible, I want to suggest, that a grammar which exhibits the workings of a natural language cannot meet such a requirement.

It may be that an earlier portion of a grammar allows the introduction of a structure even though the remaining rules of the grammar fail to assign it an acceptable surface form. For types of phenomena that have concerned Perlmutter (in Perlmutter 1968), such a failure is to be accounted for in terms of surface-structure constraints. Surface-structure constraints, however, make up a fairly clearly-defined segment of the grammar itself, and their justification is based on their contribution to the task of isolating grammatical from ungrammatical strings. The issue I am about to bring up is different.

In general, tag questions in English are constructed by adding to any assertive sentence an interrogative piece which contains as subject a pronoun which matches the surface subject of the main sentence, and a pro-verb-phrase which corresponds to the predicate of the main sentence and which is negative in case the main sentence is affirmative, and vice versa. What we need to be able to say about English is that a tag question formative can be chosen with any assertive sentence but the rules for constructing tag questions out of such combinations fail to cover all cases.

People have trouble with tag questions after such sentences as

(14) Somebody's out there.
(15) Somebody tried to get in.
(16) I'm competent to do that.
(17) One of us could go.

The rule for forming the tag question requires the selection of an appropriate pronoun. 'Somebody' is human and singular and unmarked for gender. 'It' is non-human, 'he' and 'she' are marked for gender, and 'they' is plural. There is no pronoun which matches 'somebody'. From the paraphrasability of (14) with (18), many people say (19), but others end up with (20) or (21), and still others give up.

(18) There's somebody out there.
(19) Somebody's out there, isn't there?
(20) Isn't he?
(21) Aren't they?

For a sentence like (15), some people say (22), and others give up; I have heard myself say (23). For (16) some people accept (24), a great many allow themselves to say (25), but many others simply do not know what to say. For (17), the best thing is to make a joke out of it, as in (26). Our grammar sometimes fails us.

(22) Didn't they?
(23) Didn't there?
(24) Aren't I
(25) Ain't I?
(26) One of us could go, couldn't you?

Observations like these are certainly familiar, and for illustrating my point I could just as well have considered the rules for subject-verb agreement and their failure to yield grammatical sentences corresponding to (27) and (28).

(27) Either he or I is? always on duty.
(28) Either he or I am? always on duty.

The recognition of problems of this sort is the recognition of what people try to say, how their grammars fail them, and how eventually they invent a new form, they go ahead and say something they feel is ungrammatical, or they give up. To account for such situations we must allow grammars to be 'incomplete' in just the right ways, that is, for just those situations in which the creative part of a grammar sets up something which the interpretive part cannot cope with.[2]

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[2]It should be pointed out, incidentally, that the discovery of this sort of operative failure in a grammar offers no comfort to those persistent spokesmen for the inherent vagueness of grammars. Grammars may indeed have areas of unimprovable vagueness, but the facts about English that I have been discussing can be made totally explicit. What gives the native speaker the impression of vagueness is his uncertainty about knowing what to do when he wants to say something which his grammar--in ways unknown to him--fails to allow him to say.

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7. The ordinary working grammarian learns what he can about the grammatical processes which are available to the producers of sentences, and he uses what he knows of these processes for describing these sentences. He welcomes Chomsky's discussions of the non-accessibility of correct grammaticality judgments, because without the Clear Cases Principle to guide him, he knows of no way to bring to his task of writing a grammar the evidence of grammaticality judgments. He wants to know what sorts of things can go wrong in the production of an utterance, and what kinds of freedom creative users of language have for constructing sentences or near-sentences in their language. He does not want to be responsible for a relative grammaticality ranking of utterances or utterance/description pairs.

He will be glad if he can be reassured that his success as a grammarian will not be measured on the basis of his ability to demonstrate that his grammar does everything that generative grammars have been said to have to do. I believe he deserves such reassurance.

Knowing what he does not have to do will not give him reliable insights into what he does have to do, unfortunately, but that is because the ordinary working grammarian I have in mind is exactly as confused as I am about that. If he is a practitioner of the New Taxonomy, he is having a good time. It is possible to remain happy, for a while, without well-defined goals.

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