TRANSFORMATIONAL AND GENERATIVE GRAMMAR

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It is a great pleasure for me to be back in Connecticut again. In 1961 I was fortunate enough to take some linguistics courses from Professors Gleason and Samarin of the Hartford Seminary Foundation, and in 1963 I commuted once a week from Cambridge to teach a couple of courses there. It was at this time that I became acquainted with Professor Gleason's work with the English program in the Westport schools, and like everyone else who was connected with him at the time, I was called upon to read and to criticize his manuscript version of Linguistics and English Grammar. As I am sure you well realize, this is an important and significant book, both for linguists and for educators, and as far as Gleason's criticisms of the contemporary scene in English teaching are concerned, I must say that I agree wholeheartedly with him. I also heartily endorse Gleason's modest proposals concerning what would constitute the proper training of English teachers. Of course, linguists, like everyone else, are prone to tell others to learn everything there is to know in their field, but I do not believe that Gleason's suggestions can be criticized for doing this.

I think that it is fair to summarise one aspect of Gleason's criticisms, and also the criticisms made by Martin Joos in his marvelous essay "Language and the School Child", appearing in Language and Learning, as saying that English teachers, when they ostensibly teach grammar, are not teaching what the child already knows. If a child obeys a hundred

rules of syntax, let us say, but violates one of the teacher's pet rules, he is corrected immediately. The problem is not so much that the kid feels that it is unfair to get corrected sharply for a performance in a subject which, if it were arithmetic, say, would earn him a score of 99, but that the child dimly perceives the correction as being arbitrary and unmotivated.

When I say that English grammar is a subject which a child already knows before he is taught it, your minds should immediately conclude, "Aha, this guy is a Platonist and he's going to spring that old theory of 'learning is recollection' on us". If that's what just popped intn your minds, you're exactly right. I will remain non-committal as to the general validity of Plato's theory, but I don't think it can be denied validity in the case of language. Learning to speak and understand a language is to internalize its grammar. Ideally, then, what we should be doing when we teach grammar to native speakers is to be bringing to conscious awareness the rules of syntax which they know unconsciously. I doubt that there is any teaching method for doing this; if it is to be done at all these days, it will be done by a version of Socratic dialectic questioning which is appropriate to American classroom culture.

If the English grammar teacher is to play Socrates to his pupils, however, he must have at his disposal and clearly fixed in his mind what the rules of a significant fragment of

English syntax are, just as Socrates had fixed in his mind the geometry theorem he was trying to get the slave-boy to "recall". He must have a sense not only of what the rules are, but of how they hang together, and of what kinds of linguistic facts are described by these rules. To me this can only mean one thing. Teachers of English grammar are going to have to control a generative grammar of a significant fragment of the English language if they are going to succeed in the task of bringing to consciousness the rules of English grammar which American children know unconsciously. You are maybe shocked by this assertion. I will admit that it is perhaps somewhat unrealistic--after all how many linguists are there who control a significant fragment of a generative grammar of English?

I will come back to the point of considering the unfeasibility of this suggestion in a moment; let me first define some terms and fill in some background. A grammar of a language is simply a collection of rules which tell us how the sentences of that language are constructed. A generative grammar is one in which the rules are harnessed together in a particular way so that the grammar actually defines the set of sentences which make up the language and assign to those sentences the grammatical structure which they in fact have. In a generative grammar, everything is explicit; nothing is left to implicit understanding because it is

native speakers' implicit understanding which a generative grammar seeks to describe. Leaving a generative grammar inexplicit is like saying that a person knows that a particular sentence is ungrammatical, or that it has such-and-such a structure, because he knows it.

People are often confused by the adjective "generative"; they get the impression that according to generative linguists when a person utters a sentence, his mind must click through the rules of the grammar which generate it. But this is not so. The rules of a generative grammar of a language are analogous to the axioms and rules of inference of a mathematical system, such as ordinary arithmetic. Nobody assumes that when a child successfully performs a problem of addition in his head that he does it step-by-step using the axioms of arithmetic. The axioms in this case merely define the set of correct answers to problems, and so it is with the rules of grammar.

As Chomsky, Gleason and many others have pointed out, a generative grammar is not necessarily a transformational one, nor is a transformational grammar necessarily generative. There are four possibilities, and they all at least theoretically exist. A generative grammar of a language is simply one which asserts that a particular candidate is or is not a sentence of that language and that it has a certain structure (or structures just in case it is genuinely ambiguous). A transformational-generative grammar is one which says that

the structure of a sentence is not necessarily simply that which you get by parsing it and by assigning its morphemes to their respective grammatical or lexical categories. A TGG says that besides this structure (the one you get by parsing and morpheme-class identification), there is another one, which is more abstract than the other in the sense that it is never directly realized in speech or writing. Using the terminology made familiar by Chomsky, TGG says that corresponding to each sentence there is a deep structure and a surface structure, and that these two structures are related by a set of rules called transformations. According to the theory of TGG, the grammar of a language is organized according to the chart given in Figure 1.

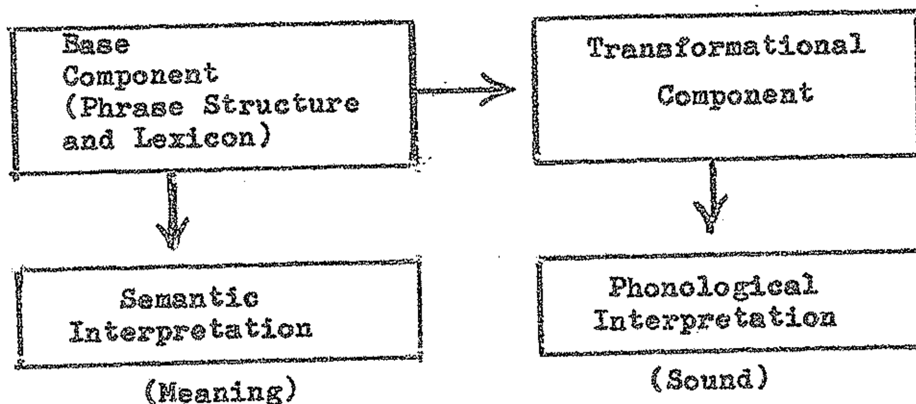

Figure 1. Organization of a grammar

The most radical feature of transformational-generative grammatical theory is its claim about the nature of the structure

of sentences, in particular about the existence of both deep and surface structures for every sentence of every language of the world. In the early days of TGG (from three to ten years ago) this feature was not usually stressed as heavily as another related feature of the theory: that it enabled one to speak coherently about relationships among sentence types: passive to active, interrogative to declarative, indicative to imperative, negative to affirmative, etc. However, competing linguistic theories are saying more about this matter nowadays, so that focusing on this feature of TGG theory no longer has the revolutionary ring it once had. I'm sure it won't be long now before the competition is also talking about deep and surface structure, but I want you to know where this talk all got started!

This concludes my digression. Perhaps some of you have forgotten where it began; it came in just after I had finished acknowledging the unfeasibility of my suggestion that teachers of English grammar acquire mastery over a significant fragment of a generative grammar of English. One reason for its unfeasibility, at least at present, is that such a grammar has not yet been written. At least, there is no grammar of a significant portion of the English language written, over which consensus among professional linguists, even restricting ourselves to generative linguists, could be obtained. In other words, English grammar and indeed linguistics in general, as viewed by generative linguists, suffers from a lack of a

commonly agreed upon body of knowledge. Not that there is any shortage of data; linguistic studies generally suffer from an excess of data. It is insightful formulations about which a community of serious scholars can reach agreement that are lacking.

For this reason, if for no other, it is premature, indeed it is folly, to speak of any "new English" curriculum revision for the schools parallel to the "new math". Any author or publisher who claims that his series of textbooks can be used as a basis for offering a "new English" curriculum is seriously in error. Intellectual fads have no place in our schools, and any wholescale faddish treatment of generative linguistics should be instantly rejected by educators. It is time enough to teach children this stuff systematically when scholars can agree, and not until then. Meanwhile, let a thousand pilot projects flourish.

Now that this has been said, we are in a better position to evaluate properly the genuine contributions that twentieth century transformational-generative grammatical theory has made to linguistics and the potential contributions it can make to education. If, as I have said above, a generally acceptable generative grammar of English has yet to be written, it is only a matter of time before it will be written. This is a remarkable situation. We are on the brink of something never before comtemplated by linguistics in the entire history of the science: the existence of an explicit, descriptively

adequate grammar of a significant fragment of a human language. Why am I so optimistic about the possibility of this happening? Basically it is because of the fact that as time has gone on, discernible progress toward the "truth" is being made by generative linguists. It is a very profitable exercise to compare studies in English syntax by generative grammarians in the "early" period (from roughly 1955-1963) with more recent studies, especially when you compare studies having to do with similar grammatical facts. As a case study of this sort, let me briefly sketch the history of generative grammatical studies of the English imperative.

In the early period, Chomsky, Klima, Lees and other grammarians concluded that English imperatives were derived by deletion of the subject noun phrase _you_ and of the modal auxiliary _will_, and that therefore the structure underlying such imperative sentences as:

(1) Go directly to jail!

is the same as that underlying sentences such as:

(2) You will go directly to jail.

The reason for postulating an underlying subject _you_ in imperative sentences was to account for the appearance of the reflexives _yourself_ and _yourselves_ and the intensifier _own_ in certain

imperative sentences, such as:

(3) Protect yourself now!

(4) Protect yourselves now!

(5) Use your own pencil!

and the reason for assuming the presence of the modal *with* was to account for the character of the tag on imperative sentences as in:

(6) Be a good boy for a change, won't you?

It was also argued that these deletions were performed by a rule which applied before the rule to insert the empty morpheme *do*, to account for the fact that only in the negative and emphatic affirmative imperative does the morpheme *do* co-occur directly with *be*:

(7) Don't be too generous with your money.

(8) Do be careful, won't you?

For a summary of some of these arguments, see the article by Lees and Klima, "Rules for English Pronominalization" in *Language* 39, no. 1., 1963.

The English imperative construction was taken up in some detail a year later by Katz and Postal in *An Integrated Theory*

of Linguistic Descriptions, pp. 74-79. After summarizing the position outlined above, the authors remark, "The previously presented analysis of imperatives is thus, as far as it goes, both highly motivated and for the most part syntactically natural." However, as the authors go on to point out, there is strong evidence to believe that the analysis just given is wrong, mainly for its claim that the structures underlying imperative sentences are the same as those underlying sentences starting off with you will. Among other things they point out that certain adverbials such as maybe cannot occur in imperative sentences but can freely occur in you will sentences, thus:

(9) Maybe you will go directly to jail.

(10)*Maybe go directly to jail.

and that certain verbs and adjectives cannot occur in the imperative, although they can occur with you will:

(11) You will want to be famous.

(12) *Want to be famous.

and

(13) You will be beautiful at the ball.

(14) *Be beautiful at the ball.

To handle this new evidence Katz and Postal conclude that the underlying structure of imperative sentences differs from that of structures underlying ordinary *you will* sentences, in that the former but not the latter contain what they call an Imperative morpheme. This morpheme is viewed as a "trigger" for the application of the transformation which delete *you will* in the derivation of imperative sentences.

This year, now, Jimmy Thorne of the University of Edinburgh has uncovered new evidence concerning the English imperative which suggests that even Katz and Postal's analysis can be further refined. In his article "English Imperative Sentences" which has just appeared in Vol. 2 of the *Journal of Linguistics*, Thorne argues that the subject of English imperative sentences is not necessarily the second person pronoun *you*, but may also be third person, as in:

(15) Johnny take it from here!

(16) Everybody go home!

The conclusions reached by Thorne concerning the English imperative make English look very much like Latin in this respect; at least as far as underlying structures go. I hasten to add that Thorne is not forcing English into Latin mold; rather he is discovering that in fact the syntax of Latin and English are more similar in fundamental respects

than examination of the surface structure of sentences in the two languages would lead one to expect.

The history of the treatment of the English imperative construction illustrates quite nicely the way in which progress is made by generative grammarians in their work on particular problems of syntactic analysis. While later formulations do supersede earlier ones, they nevertheless use these formulations as a basis from which to start. I think that twenty or fifty years from now, however long it takes for linguists and educators to agree on a particular generative grammar of English for use in the schools, it will be found that the order of discovery and refinement of grammatical description will correspond quite nicely with pedagogical order. This may be fanciful speculation, but maybe eventually in the sixth grade the English imperative will be considered from the 1963 perspective of Klima and Lees, in the eighth grade Katz and Postal's 1964 treatment will be used, while Thorne's 1966 refinement will be mentioned in the tenth grade. Call it spiral curriculum if you like.

Let me now enumerate very quickly and briefly some of the other major contributions of contemporary generative linguistics. First it has re-established in linguistics the classical concern for explanation which goes beyond mere description that has been conspicuously absent from the field during the past hundred years. You may have heard of Chomsky's hierarchy of "adequacies": observational, descriptive, and explanatory. In a recent paper on the linguistic

theory of the Latin grammarian Varro, I have attempted to establish a connection between this hierarchy and the classical Greek one, whose terms are usually translated practical wisdom, science and knowledge. The attempt to achieve explanatory adequacy is simply the attempt to get behind not only the facts of language but the description of the facts that linguists come up with; it raises the question of why the structure of language is what it is and not some other structure. Concern for explanation need not lead to the ignoring of concern for description, as some linguists apparently fear, but rather it should have a beneficial and stimulating effect on purely descriptive studies of language.

A second contribution that modern generative grammar has made is the rehabilitation of the work of traditional grammarians, toward whom other so-called structural linguists have tended to be hostile or at least indifferent. In his most recent book, _Cartesian Linguistics_, Chomsky has shown most convincingly that seventeenth-century rationalist grammatical theory bears striking similarity to TGG, so much so that at times Chomsky writes as if contemporary generative grammarians are actually working in direct historical continuity with this group. In general, generative grammarians have sought not to overthrow the work of traditional grammarians, but to make more explicit what they were trying to say in the absence of an adequate theoretical framework.

A third contribution has been simply its focusing on linguistic rules rather than on the amorphous mass of data. Generative grammarians treat linguistic data much like physicists treat their data--they go looking for material which will shed light on some theoretical or descriptive problem of rule formulation and ignore the mass of data which has no bearing on the question at hand. This does not show indifference to data, or disregard for it, as some have held, but is the only reasonable scientific attitude to have toward it. With their concern for rules of grammar some linguists have accused generative grammarians of prescriptivism, or at least tendency toward it. This is perhaps the most absurd and uninformed charge of all. Actually by focusing on rules of syntax, generative grammarians have at last provided the framework necessary to discuss the very important problems of dialect differences, historical development of language and stylistics. Part of the repertoire of any creative writer's kit is the ability to break the rules of syntax for stylistic and dramatic effect. But unless he knows explicitly what the rules are, how can the scholarly critic possibly coherently discuss how the artist breaks them?

I could continue for some time with this enumeration of the virtues of contemporary generative grammar, instead let me conclude my remarks today raising a very general question about the goals of English grammar teaching in the

schools and some recommendations about what they might be in light of what I have said today. The question is: given some well-designed program of instruction in English grammar from grades four to twelve based on some generally approved generative grammar of a significant fragment of English and given a qualified staff of teachers in charge of this program, what might we expect or desire an intelligent college-bound twelfth-grader to know?

A quick answer to this might be: a lot more than what today's first year graduate students in linguistics typically know! I do believe that it is possible to teach most if not all what we currently put into introductory graduate level courses in linguistics in the primary and secondary schools, but of course the more significant question is: is it worth the time, effort and money to attempt this on a more-than-trial basis?

Now let me try to give a more careful answer to this question. The first thing we may expect of this pupil is that he himself have conscious awareness of most of the rules making up the syntactic fragment comprising the basis of his English grammar education, and some sort of awareness of the aspects of the language not handled adequately by these rules. I suspect that such a pupil might do relatively poorly on today's Scholastic Aptitude Test and especially on the English grammar section of the College Entrance Examination Board test, but I would not hold that against him.

Secondly, we may expect him to know at least the rudiments of linguistic theory, which to me means the theory of TGG. He should know how syntax, semantics and phonology are related, and comprehend the distinction between deep and surface structure. Ideally he will have been given first-rate instruction in one or more foreign languages and will be in a position to sensibly and sensitively compare their structure.

Third we may expect that he will have been shown how knowing the mechanics of grammar he can come to a more sensitive appreciation of genuine literary creations, and how to apply his knowledge to improving and refining his own literary style. Naturally he should be aware of such matters as the relation of language to communication in general, of the varieties of style appropriate to different media of communication, of geographically, socially and economically determined dialect differences, of the historical development of language, particularly English, and last but not least how the traditional body of grammatical dogma relates to what he has learned, for after all he has to live in the real world, in which this dogma still looms large (maybe he won't do so bad on the SAT and CEEB exams after all!)

But if this is the product of our high schools, what do the colleges teach?