

is the necessity of some sort of generally defined semantical apparatus. General (formal) semantics does supply such an apparatus, and linguisticians are welcome to appropriate if they feel inclined.

Now what carries most of the burden of 'means' in Katz's system is 'semantic marker'. What we shall demand is a clear account of what a semantic marker *is* (it is not an expression, remember) and also a general definition of:

x is a semantic marker of E in L .

What we get, of course, is nothing more than some quite unsatisfactory informal remarks about semantic markers. Now the linguisticians *as such* can resist the demand for general definitions. (I don't know that any linguisticians has condescended to define 'noun phrase' and 'verb phrase', and in any case they're running *their* show.) But Katz cannot. He has defined 'analytic' in terms of 'semantic marker', and on this account he cannot honestly resist the demand for a general definition of 'semantic marker' and at the same time claim, as he does,¹² to have supplied a general definition of 'S is analytic in L '.

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CHOMSKY'S THEORY OF SYNTAX: TWO REVIEW ARTICLES

Aspects of the Theory of Syntax. NOAM CHOMSKY. Cambridge, Mass.: MIT Press, 1965. x, 251 p. \$7.50.

METHODOLOGICAL ASPECTS OF THE THEORY OF SYNTAX

Linguistics, psychology of learning, philosophy of language, and methodology of science are the subject matter of this short book. To all these topics it contributes original ideas. It is no wonder that the richness of thought exceeds the organization of the text, which is rather a selection of notes from the workshop of a vigorous mind than a systematic treatise. A review cannot summarize the book, which needs expansion. This review will not go into linguistics or psychology, the latter being not intrinsically connected with the rest of the book anyway. Although the linguistics, and its details, influence the views of the methodology, for this JOURNAL it is proper to concentrate on the problems of the philosophy of language or on the methodological ideas.

Here are a few leading methodological assertions from the book.

¹² See p. 94. The claim is made much more explicitly in "The Relevance of Linguistics to Philosophy," p. 601.

"Linguistic theory is concerned primarily with an ideal speaker-listener . . . who knows the language perfectly." "We . . . make a fundamental distinction between *competence* and *performance*." "Linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behavior, [with] the underlying system of rules that has been mastered by the speaker-hearer." Each of these statements is a metaphor, and in philosophy metaphors are only too often taken literally. There is no reason to think that there are such objects as the ideal speaker-hearer and his language. There is no reason to assume the existence of mental reality or of anything underlying anything else. The pedestrian content of these metaphors is presumably correct, but the author did not put much effort into a pedestrian formulation of these assertions. This is regrettable, since philosophy of language has suffered for a long time from both oversimplifications (like Bloomfield's) and overstatements. The author is persuasively fighting the former, but is in danger of succumbing to the latter. Maybe he does not actually succumb, since, with effort, one may assign a reasonable reading to most of his assertions.

What, then, can be meant by saying that linguistics is about competence rather than about performance?

It may mean, first, that linguistics does not attempt to give just an inventory of one or another person's actual utterances. Surely, this is not what a linguist tries to achieve, just as a physicist does not take as his goal the cataloguing of all speeds with which actual bodies move. Both the physicist and the linguist want far more than an inventory; they want more or less general laws of which the entries in such inventories are particular cases. But it is a common experience of scientists that general laws not only miss particularities of the special cases, abstract from many properties, and concentrate on very selected properties, but also, when concerned with selected properties, fail to describe the particular cases precisely, doing so merely with a limited degree of accuracy.

The second meaning of the statement that linguistics is not about performance but about competence is, therefore, that linguistic laws are not mere generalizations of utterances; they do not match utterances—just as the theory of ideal gases is not realized by any actual gas, or as geometry is not about the shapes or volumes of everyday objects. In the first sense, linguistics, like any science, makes abstractions; in the second, also like any other science, it makes idealizations. The actual utterances do not constitute a model about which the theory is true.

But the utterances themselves do not exhaust the bare linguistic

data. The word 'competence' suggests that we enter a realm of psychology. In the third sense, the above dictum is to be understood as saying that introspection is a source of linguistic knowledge. Our introspection about performance is to be admitted as linguistic evidence. Here we enter into that stream of the philosophy of linguistics which may be labeled, or branded, "psychologism," i.e., abuse of psychology. De Saussure and Sapir were the outstanding promoters of that thought. Ontologically, neither the identification of meaning with the set of mental images a phrase evokes, as in De Saussure, nor the psychological reality of phonemes, as in Sapir, nor the mental reality of grammatical structures, as in this book, is to be taken seriously. Rather, the fact that the speaker can attest that some of his utterances are incomplete, interrupted, awkward, or not the best, and that some utterances are thus and so related to some other utterances is taken as an important linguistic fact. Linguistics is not about our slips of tongue, even if most of our actual speech is composed of these, provided that in each or in most cases we can recognize on reflection that such utterances are not strictly correct. There should be no objection to this use of introspection. But certainly not every introspection about our linguistic performance is to be taken with equal interest by a linguist as his empirical material. For example, a person may find in introspection that his utterance is morally questionable or that it is true. It is important for the linguist to ignore these nonlinguist's points of view and to find the proper linguistic aspect of our introspections about our linguistic performances.

Moreover, as the author notes, "the speaker's reports and viewpoints about his behavior and his competence may be in error." And he adds, paradoxically, that linguistics "attempts to specify what the speaker actually knows, not what he may report about his knowledge." This is a peculiar sense of 'knowledge'. I know how to walk, but I cannot state the rules governing my walking. The statement that linguistics is about competence asserts in its fourth sense that linguistics tries to discover the rules that satisfy the following five conditions:

1. The rules produce sentences.
2. The rules assign structures to sentences.
3. The native speaker feels that the sentences produced are in his language.
4. The native speaker feels that the sentences produced do have these structures.
5. What the native speaker feels is true.

Conditions 1 to 4 may be taken to interpret the third meaning of the

leading assertion about the topic of linguistics. From the point of view of the fourth sense it is condition 5 that makes the real difference between the study of performance and the study of competence. Native speakers may report consistently but not correctly about the structure of their own sentences; by ignorance, habit, or bad education they may overlook some features of what they say, while a linguist may point out to them what they have overlooked. After all, linguists have done exactly this for many centuries. It should be noted that conditions 1 to 5 constitute the present reviewer's reading of the text. The text itself does not explicitly refer to truth. Instead it uses the metaphor of underlying mental reality and underlying rules.

A careful reader will find that the author maintains the statement that linguistics is about competence rather than performance in all four senses described above. The first two seem unquestionable; the third calls for recognizing proper linguistic introspection; the fourth brings the problem of justification of such a set of rules. The set of those rules, or a particular arrangement of them, constitutes a theory of the language studied. The author is inclined to consider a theory primarily as rules for production of utterances together with their required structures, imposed features, and relations to other such structures. This is connected with a consideration of language as being determined by such rules. There are infinitely many sentences in a language. We use and hear with understanding locutions we have never heard before. We assume that the set of sentences of a language is recursively enumerable and that the set of their respective relevant structures is recursively enumerable. A grammar is to provide a finite set of rules by which these sets are simultaneously recursively enumerated. The term 'generative grammar', one may suppose, is used in the book and in other writings by the same author for such a set of rules.

Of course, a recursively enumerable set can be enumerated by more than one set of rules. Which set of rules, which generative grammar, should we choose? We must choose one which will be in accordance with some general principles about language as such. If a general linguistic theory in some uniform way selects a particular grammar for each language, then a grammar so selected is preferred to other grammars, even though their descriptive power (i.e., the set of sentences and their structures which the grammar recursively enumerates) may be the same. The theory selected will have explanatory value, will say not only that in a language this and that are sentences with their respective structures, but also that these facts are in accordance with what a language, any language, should be.

But on what grounds should one look for such a general meta-grammar? Here the author surprises the reader (of course, not a reader of his previous work, for he was surprised before) by identifying the general theory of syntax with a theory of language acquisition, an account of those innate abilities which make our learning of language possible. There is much of psychologism in this; there is, perhaps, a genetic fallacy, consisting in regarding the learning of language as closely connected with its internal structure. But above all there is a tendency to relate the structure of language to the structure of our mental processes, the functioning of the brain. The principles that select the best grammar are linguistic universals. The author speaks as if a child had a tacit, innate knowledge of these universals. This is reminiscent of many writers from the rationalist and naturalist schools, Descartes, thinkers of Port Royal, Leibniz, Herbert of Cherbury, and Reid, who are called upon to support the author's stand on innate universals. The reader does not know how seriously to take this stand and these formulations. In the very text there are many warnings not to take them literally, and some reasonable interpretations are suggested. Still, one may wonder whether it would not be better to leave behind all this confusing and misleading historical baggage and state more precisely the expected logical relation between the expected theory of language and particular grammars, the theory restricting the choice among the grammars.

But, before leaving the historical analogies, recall that ideas about common universals come historically from the Stoics. Their *koinai ennoiai* were common ways of thinking, though not innate. The Stoics did not make the jump from common to innate. And the philosophers of the seventeenth and eighteenth centuries used the common ideas as the basis for a rational theory of knowledge. In the case of Herbert of Cherbury it was religious "knowledge" and the result a natural religion. There is a similarity between Herbert and Chomsky in that they do not really proceed by examination of many cases. Herbert takes from Christianity what seems to him rational and considers it common to all religions and therefore the natural religion. Chomsky presents no more than English and an isolated property of Mohawk to substantiate some grammatical universals. Perhaps we should not accuse him of making an induction out of two cases. He seems to think that an intrinsic grasping of the structure of one language somehow grasps the structure of language as such. This procedure is not induction. Rather it is understanding. It reminds one of the procedures of *verstehen* advocated by Dilthey. From insightful examination of a single case we reach a general conclusion which

we base on our insightfulness. One may add that, even if the hypothesis arrived at is true, it may quite as well substantiate the claim of the common historical origin of languages or of religions as the claim that language or religion reflects our nature. (Another book by the same author appeared soon after this one, entitled *Cartesian Linguistics: A Chapter in the History of Rationalist Thought*,¹ in which the analogy between his thinking about language and the thinking of some philosophers is traced in greater detail.) Some common properties of languages are suggested by classical grammars. Sentence, subject, predicate, noun, verb, etc., are examples of concepts classically supposed useful in description of any language. These are called here 'substantive universals'. But there may be common properties of grammars, of those preferred grammars, which are more systematic in nature. For example: every adequate grammar uses transformations; rules apply in an order, unary and binary transformations are always applied in such order that the unary applies to the included sentence and not to the including sentence before the binary, and the unary applies to the including sentence and not to the included sentence after the binary. (The author's discussion in the book of this hypothesis is an important contribution to linguistics, at least to the linguistics of English.) Such common properties of the grammars are called 'formal universals'. The distinction between substantive and formal universals does not seem sharp; if formulated more carefully it may easily disappear altogether. Verb, a supposed substantive universal, is a concept used in such principles as: every sentence has a verb. But a verb is a part of a sentence which behaves in a characteristic way under transformations of the sentence. Therefore, what one wants to say is that in any sentence there is a part which in some specifiable ways remains invariant under transformations. But this is a formal universal.

Linguistic concepts, such as a particular phoneme, noun, subject, or a particular transformation, are elements that play a role in derivations and representations of sentences. It is an empirical matter whether an English elementary sentence is to be divided into subject and predicate. This segmentation is justified only if there are many uses of this segmentation in further derivations and if the subject and the predicate are used separately in the rest of English grammar. For instance, the place of an auxiliary in a simple negative of a sentence indicates the cut between the subject and the predicate. There may be competing suggestions, e.g., that the sentence is to be divided into the subject, the verb, the object, and the adverbial modifier. The

¹ New York: Harper & Row, 1966.

decision between these hypotheses must be made according to what is more useful for stating the grammar. If more transformations operate on the structure of four segments than on the structure of two, then four is to be preferred, even if one has to postulate that some of the segments are empty. Such theoretical elements often are not language universals. They are specifically based on the particular language studied. Their choice is determined not by a general theory but by internal usefulness within the particular grammar. This point is not made quite clear in the book, though the empirical nature of choosing a segmentation or a concept and the connection of those choices with the rest of the grammar is emphasized (209). One may, of course, include in the general metatheory of grammars the requirement that selection of concepts for a grammar be made according to which set of concepts leads to a more proficient, simpler theory. Indeed, there are such suggestions in the book. However, in the text they are mixed up with comments about the learning of a language, and this mixing obscures the matter. Moreover, the requirement of simplicity of the best grammar does not have to coincide with the requirement that the best grammar be made according to the linguistic universals, to the principles that define the concept of language. On the contrary; it is very plausible that, if put rigorously, these requirements would be found to be in sharp contrast. Anyway, their coinciding or conflicting is to be studied when linguistics and the general methodology of science are far more advanced than they are today. In the book simplicity and universality are not clearly separated. What is made clear is that we are very far from establishing any explicit measure either of such usefulness of concepts or of simplicity of theory based upon them. Not only for linguistics but for much more elementary theories we do not have, and hardly expect to have within the immediate future, any operative measure of simplicity. It is therefore considerably premature and confusing to list among the requirements for a linguistic theory, as Chomsky does in this book, that such a theory should specify a numerical measure of the simplicity of a grammar.

There is an outline of some properties of a proposed organization of a transformational grammar of English. The difference between the author's present way of doing transformational grammar and his previous attempts are many: the enlargement of the set of base rules (i.e., roughly, of the part of the grammar that gives structures operated upon by transformations); the introduction of selection rules besides the rules of subcategorization; the application of a technique similar to Jakobson's distinctive features to the syntactico-semantic

elements; the increased role of a dictionary in which items are characterized not only by grammatical categories but also by a matrix of the distinctive features that play a role in possible co-occurrences of items. These technicalities are important. They make grammar a more mature science. And they are carried in the book with a rare mastery. The result of the changes in Chomsky's techniques is that the grammar as presented in this book is closer to the original Harris treatment of transformations than Chomsky's previous formulations. And the result shows emphatically that syntax and semantics are not easily separable. On the contrary, the interplay of syntactic and semantic properties is present in almost every step of the development of a grammar. Maybe it is only a part of semantics that enters the grammar, that part which does not deal with truth or denotation but which deals with paraphrase, synonymity, and ambiguity. But the program, popular twenty years ago, of holding semantics outside of syntax is no longer followed by linguists.

In one respect Chomsky has not changed the style of his work; he keeps the grammar within the limits of a sentence. He does not consider stretches longer than a sentence. Not that he excludes such study in principle, one may suppose; but in the present stage of the development of our grammatical knowledge he tries to discover the grammar of a sentence and of its structure without taking account of the context. To the present reviewer this sentence atomism does not seem justifiable. A two-sentence text often is a paraphrase of a one-sentence text, and this fact often is directly relevant to the structure of the three sentences involved. And there is still the most important linguistic problem: how does it happen that an ambiguous sentence ceases to be ambiguous when placed in the context of other sentences? How do these other sentences contribute to the elimination or diminution of the ambiguity? This problem is not mentioned in the book. But it should be easier to explain why we assign such-and-such a structure to a sentence by pointing out how this sentence changes the readings of neighboring sentences than by referring to innate universal ideas and mental reality.

The book contains many methodological ideas which, taken together, form a stylish, coherent, original, and forceful, though not in all components necessarily correct, system of philosophy of science.

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