Knowledge of Language
and
Theory of Language
— A Criticism of Generative Grammar

Yoshikazu OKA

One of the purposes of generative grammar is to clarify the enigma "How is knowledge of language put to use?" Therefore it is concerned with the linguistic ability of the native speaker. It is doubtful, however, whether this purpose is pursued when we see that the focus of generative grammar lies on exploitation of syntax, paying little attention to other elements. The present paper attempts to show that generative grammar imposes the formalistic approach to linguistics on the actual state of linguistic knowledge. The investigation will reveal the fact that generative grammar, in fact, does not necessarily follow a realistic method and the fact that idealization of the subject of study is determined by the principle as to whether a "formalized system" of rules can be developed. The conclusion drawn from the examination of the methodology of generative grammar would be that it has exploited the theory not of the linguistic ability of native speakers but of rules of syntax.

I

Chomsky claims that systematic simplicity where simplifying one part of a whole system will cause other parts to be simple leads to an appropriate formulation of grammar:

Notice that simplicity is a *systematic* measure; the only ultimate criterion in evaluation is the simplicity of the whole

system. In discussing particular cases, we can only indicate how one or another decision will affect the over-all complexity. Such validation can only be tentative, since by simplifying one part of the grammar we may complicate other parts. It is when we find that simplification of one part of the grammar leads to corresponding simplification of other parts that we feel that we are really on the right track. [1]

Though Chomsky considers the simplicity of a theory to be an important factor in building a grammar, he refutes simplicity based on only elegance or economy of rules. This stems from the fact that he is a realist. The purposes of generative grammar are 1) to exploit a theory for answering the problem of what it is that native speakers can use their languages and 2) to show why they can acquire the ability of using their languages. The first purpose is concerned with the study of individual language and the second with the study of language acquisition. Chomsky argues that simplicity of a theory must be empirically based:

··· if pairs (D_1, G_1), (D_2, G_2), ... of primary linguistic data and descriptively adequate grammars are given, the problem of defining "simplicity" is just the problem of discovering how G_i is determined by D_i for each i. Suppose, in other words, that we regard an acquisition model for language as an input-output device that determines a particular generative grammar as "output," given certain primary linguistic data as input. A proposed simplicity measure, ... , consitutes a hypothesis concerning the nature of such a device. Choice of a simplicity measure

is therefore an empirical matter with empirical consequences. [2]

Generative grammar assumes on 1) that native speakers are endowed with some kind of linguistic knowledge. This standpoint is based on realism which requires a theory to be correspondent to a certain actual thing, opposing to instrumentalism which sees a theory as a mere hypothetical device constructed to explain some phenomena with the simplest systematic rules. The reason why a simpler grammar is favored in empirical linguistics is that children acquiring a language are assumed to select the simplest one among grammars available to them by virtue of memory restrictions and other factors.[3] So the criteria of "simplicity" meets the condition imposed by realistic viewpoint.

Though Chomsky maintains that "every speaker of a language has mastered and internalized a generative grammar that expresses his knowledge of his language,"[4] it is not evident that his remark is true. Chomsky sees such information as speakers' judgments on ambiguity or grammaticality of sentences as evidences for constructing a rule. G. H. Harman, however, opposes the hypothesis on the grounds that the speaker's responses to sentences do not necessarily substantiate his knowledge:

··· speakers of a language do have something that might be thought of as tacit knowledge about the language. Thus, speakers can be brought to judge that certain sentences are ambiguous, that certain sentences are paraphrases of each other, or that certain strings of words are not grammatically acceptable. ... . But notice that this sort of intuitive or unconscious knowledge is not the

knowledge of particular rules of a transformational grammar. It is, as it were, knowledge about the output of such a grammar.[5]

Harman shows by this remark his doubt of identifying speakers' knowledge with abstract rules of generative grammar.

Common sense would support Harman's objection to Chomsky's belief. Taking only one example, it is doubtful whether a baseball player who catches a fly has the innate knowledge of physics which explains when and where the ball falls. The same applies to native speakers' use of their languages since their responses to the linguist's questions on sentences do not assure that they have the same rules as those made by the linguist. Harman concludes, therefore, that "he [Chomsky] confuses knowing that certain sentences are grammatically unacceptable, ambiguous, etc., with knowing the rules of the grammar by virtue of which sentences are unacceptable, ambiguous, etc."[6] Though Harman's remark is worth noting, he does not deny the possibility that speakers have some mechanism which enable them not only to use a language, but also to make judgments on sentences. Then on what grounds does Chotsky assumes that linguistic rules are built in the speaker's mind?

It is the assumption of "psychological reality" which Chomsky presents to validate the existence of generative grammars in the speaker's mind. First of all, Chomsky points out the fact that a theory obtains physical reality so long as it covers available data in natural science:

Consider the problem of determining the nature of the thermonuclear reactions that take place deep in the interior of the sun. Suppose that available technique permits astronomers to study only the light emitted at the outermost layers of the sun. On the basis of the information thereby attained, they construct a theory of the hidden thermonuclear reactions, postulating that light elements are fused into heavier ones, converting mass into energy, thus producing the sun's heat. Suppose that an astronomer presents such a theory, citing the evidence that supports it. Suppose now that someone were to approach this astronomer with the following contention: "True, you have presented a theory that explains the available evidence, but how do you know that the constructions of your theory have physical reality-in short, how do you know that your theory is true?" The astronomer could respond only by repeating what he had already presented; ...[7]

Chomsky insists that a grammar constructed by the linguist should be qualified as existing in a native speakers' mind as in a scientific theory. Though it is true that a theory of the sun may be false since one can not examine into it's inner part, he objects to the idea that a theory is not proved to be true without data bearing directly on the theory. A theory can claim to be valid, insofar as it covers available data of the sun. The same is true of linguistic theory:

··· in what respect is it a "questionable assumption" to say that someone who has mastered a language has absorbed the information that the best theory we can devise supplies? Certainly such an assumption is questionable in one respect: the

theory might be incorrect, and in practice probably is. But this is the general condition of all empirical work. So if this is the reason, it ought to be an equally questionable assumption that the light emitted from the sun is caused by hydrogen turning into helium, and so on. I do not believe that a case has been made for these strictures, or even that they are particularly intelligible. [8]

The next point which should be considered is the nature of data since the construction of a theory is to be based on data in generative grammar. Though a theory should be formulated so as to cover a set of data, mere observation and collection of data, according to Chomsky, will not directly lead to a theory contrary to American structural linguist's expectation, the procedure of investigation has not been discovered. They claimed that the task of linguistics was to collect linguistic data, i. e., corpus, and to classify them into a set of categories on the basis of discovery procedures which were expected to provide, in Chomsky's words, "... a practical and mechanical method for actually constructing the grammar, given a corpus of utterances."[9] Chomsky holds that no discovery procedure is attainable, and that this is made clear by the structural linguists' failure to discover one. He also postulates that the procedures available to the present linguistic theorist are evaluation procedures only, where "... given a corpus and given two proposed grammars G_1 and G_2 the theory must tell us which is the better grammar of the language from which the corpus is drawn."[10] Now that the linguist has no way of constructing a grammar from raw data, formulation of grammars and theories is dependent on the linguist. So it is required of the linguist to

determine which data are significant and which are not for the theory under construction, as seen from Chomsky's following remark:

> Evidence is not subdivided into two categories: evidence that bears on reality and evidence that just confirms or refutes theories .... Some evidence may bear on process models that incorporate a characterization of grammatical competence, while other evidence seems to bear on competence more directly, in abstraction from conditions of language use. And, of course, one can try to use data in other ways. But just as a body of data does not come bearing its explanation on its sleeve, so it does not come marked "for confirming theories" or "for establishing reality." [11]

Moreover, it is a theory that determines which data are significant and which are not, where data are not the basis of building a theory. According to Chomsky, taking such an attitude to data does not mean removing grammatical theory from empirical science, since science in general has been developed by putting aside those data which are inconsistent with the relevent theory, expecting further development of investigation to incorporate them.[12] Such a method may lead to the priority of theory to data, where the linguist brings together those data which will support his assumption and he builds rules with little restriction of data on rules.

The idea of this kind is clear when Chomsky manifests his indifference to psychological experiments with the remark that it is not true that rules formed by the linguist are only hypothetical without being proved by psychological experiments.[13] Psychologists B. L. Derwing, G. D. Prideau and W. J. Baker criticise such an

attitude to linguistic investigation, and present their distrust because grammars are highly controlled by the linguist:

> Unfortunately for Chomsky's proclaimed "psychological" program, however, this notion of rule is of very uncertain relevence to that branch of inquiry which seeks to establish which rules, if any, are actually learned by speakers and employed by them under conditions of ordinary language use. The reason for this seems obvious enough: the mere discovery or invention of a regularity by the linguist with respect to a sample of speech forms provides no guarantee at all that this same regularity has been similarly extracted or invented by the ordinary language learner; ... [14]

In spite of Chomsky's remark that the aim of linguistics is to clarify the system which forms the mechanism of linguistic ability, there is little room for psychological study to contribute to help construct grammars.

II

Chomsky restricts the object of his linguistic study to an ideal speaker's knowledge, saying that

> linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in

actual performance. [15]

As non-linguistic factors such as those cited in the Chomsky's words, affect language use, linguistic theory should be limited to the study of an ideal speaker-listener's linguistic ability since it is next to impossible to incorporate non-liguistic factors into a theory. In Chomsky's opinion the fact that an ideal speaker-listener is merely a hypothetical entity, being far from ordinary speakers, does not harm the credibility of his linguistic theory since it is common that some kind of idealization or another is performed in natural science whose methodology he follows.

In fact, a speaker does not know his or her language perfectly, and linguistic knowledge varies from person to person as shown by the fact that one speaker regard a given sentence as well-formed while another does not. What people are doing is to manage to communicate one another using their own imperfect knowledge. Moreover non-linguistic knowledge is excluded from the domain of study. To mention one example, in such a sentence as

(1) Mary never loses his temper with anyone,

the reason why the sentence is judged to be ill-formed by the native speaker is that, "Mary" being a female name, it is not compatible with "his." Chomsky excludes knowledge of this kind from his study, concentrating on purely linguistic knowledge, though it is true that linguistic activity is performed on non-linguistic as well as linguistic knowledge.

Chomsky will respond to the criticisms raised above in the following way; generative grammar deals with linguistic skills attributed to an ideal speaker, namely, competence, rather than

performance, the ordinary speaker's actual linguistic activity. It is after the study of competence has been made at least to some extent that the study of performance will begin. He hold that "there seems to be little reason to question the traditional view that investigation of performance will proceed only so far as understanding of underlying competence permits." [16] Chomsky's indifference to communication makes it clear that his purpose is not to investigate performance. He tries to reveal what it is that a person knows about a language, and how a child can acquire a language.

Chomsky argues that his idealization is tenable, though it does not incorporate all factors relevent to language use. Refuting the criticism that a homogeneous speech-community is far from being realistic, he claims that "if the idealization does make it possible to unearth real and significant properties of the language faculty, this conclusion [to regard speech-communities as being homogeneous] would seem to be justified indeed inescapable." [17] Indeed, children learn their languages in heterogeneous speech-communities. but this fact will not deny the hypothesis that, if they were brought up in homogeneous speech-communities, they could not learn their language. So Chomsky concludes that there is no problem in the idealization. [18] Though the idealization may be acceptable in the domain of language acquisition, it conceals an important subject: how does language work in a heterogeneous speech-community? Chomsky's idealization is performed so as to exploit the object which he considers to be significant. The assumption of "ideal speaker" is created in the same notion. As rules of generative grammar which are designed to produce only and all the well-

formed sentences are thought to be internal to native speakers' minds, the "ideal speaker" who has the ability of this kind is required. Though it is true that no perfect grammar will be constructed based on actual speakers' linguistic knowledge, as mentioned before an attractive subject is to clarify why people without perfect knowledge can convey their ideas to one another.

Centering his theory on linguistic form rather than meaning, Chomsky assumes native speakers to have the ability to judge the acceptability of sentenes only from sentence structure. Chomsky argues that, though both Sentences (2) and (3) are meaningless, any English speaker will recognize that only (2) is well-formed in terms of word order.

(2)　Colorless green ideas sleep furiously.

(3)　Furiously sleep ideas green colorless.

He uses this fact as an evidence for proving that the linguistic knowledge which a speaker is endowed with is composed of syntactic rules.[19]

If this is appropriate, the idealization in linguistics can be made in such a way that it will develop syntactic study. But in fact Chomsky's assumption on this point does not hold because such a sentence as

(4)　Always dye shirts greenish blue

which is of the identical structure with (3) , namely,

(5)　adv V N adj adj

is well-formed.

Furthermore, given the sentence structure

(6)　D N prep prep D N cap adv adj

and asked whether (6) is an acceptable English structure, a speaker

will assign a word to each item and form such a sentence as

(7)　The man from across the road is always late.

But a sentence like

(8)　That function of of a crumb is around sullen,

which follows the same sentence structure is judged by him to be ill-formed. These facts show that native speakers make judgments taking the meanings of sentences into account.[20] Since people, in normal community, do not rely exclusively on highly abstract sentence structures, separation of sentence structure from meaning distorts the actual linguistic knowledge. Though ordinary language use suggests the importance of semantics, there is little hope of constructing a semantic theory comparable to syntactic theory. So one may well begin by a domain which is easy to study. Chomsky's assumption that native speakers' innate knowledge is composed of a system of recursive rules can be said to derive from his attempt to construct a formal theory when we consider his following remark:

> ··· only a purely formal basis can provide a firm and productive foundation for the construction of grammatical theory. Detailed investigation of each semantically oriented proposal would go beyond the bounds of this study, and would be rather pointless, ···[21]

The reason why syntax has become so highly developed is that it is the easiest aspect to formalize.

　　Chomsky argues there are no criteria of correct idealizations except that of bringing fruitful results for the study of language:

There are no simple criteria that provide the correct idealization, unless it is the criterion of obtaining meaningful results. If you obtain good results, then you have reason to believe that you are not far from a good idealization. If you obtain better results by changing your point of view, then you have improved your idealzation. If you obtain better results by changing your point of view, then you have improved your idealization. There is a constant interaction between the definition of the domain of research and the discovery of significant principles. [22]

These words show the priority of theory to the actual status of speakers' knowledge. After all, Chomsky has been engaged in constructing formal rules attaching little importance to what speakers actually do.

I have so far investigated the characteristics of Chomsky's theory of language study through two chapters and have come to the conclusion that his purpose of explaining the native speaker's linguistic ability has been achieved on a very restricted grounds, though it may be done at a very high level. Chapter I has indicated that the linguist's intention affects the construction of rule to such an extent that he selects data in relation to the rule on which he is working, in spite of the fact that Chomsky asserts linguistic theory is a kind of empirical science.

His method will work well, if the domain of investigation is chosen in a reasonable way. In Chapter II, I attempted to examine this point. Chomsky, regarding his theory as a study of human

mind, gives a hypothetical notion "ideal speaker-listener" the study of whom will exploit the nature of native speakers' linguistic knowledge. But the fact is that the assumption is made so as to justify restricting the study of language to syntax. Through this procedure, I hope to have clarified, in part, the fact that his interest in constructing formal rules has determined his view of the speaker's linguistic knowledge.

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Notes

1. Noam Chomsky, *Syntactic Structures* (The Hague: Mouton Publishers, 1957) , pp. 55-56.

2. Noam Chomsky, *Aspects of the Theory of Syntax* (Massachusetts: The M. I. T. Press, 1965) , p. 38.

3. Noam Chomsky, *Knowledge of Language: Its Nature, Origin, and Use* (New York: Praeger Publishers,1986) ,p. 53.

4. Noam Chomsky, *Aspects of the Theory of Syntax,* p. 8 .

5. G. H. Harman, "Psychological Aspects of the Theory of Syntax," *The Journal of Philosophy,* 64 (1967) , 81.

6. *Ibid.,* p. 82

7. Noam Chomsky, *Rules and Representations* (Oxford: Basil Blackwell, 1980) , pp. 189-90.

8. *Ibid.,* pp. 72-73

9. Noam Chomsky, *Syntactic Structures,* pp. 50-51.

10. *Ibid.,* p. 51.

11. Noam Chomsky, *Rules and Representations,* p. 201.

12. Noam Chomsky, *Language and Responsibility: Based on Conversations with Mitsou Ronat,* trans. John Viertel (New York: Pantheon Books, 1979) , p. 73.

13. Noam Chomsky, *Reflections on Language* (New York: Pantheon Books, 1975) , p. 190.

14. B. L. Derwing, G. D. Prideau, and W. J. Baker, *"Experimental Linguistics in Historical Perspective, "Experimental Linguistics: Integration of Theories and Applications,* ed. G. D. Prideau, B. L.

Derwing, and W. J. Baker (Ghent: E. Story-Scientia, 1980), p. 5.

15. Noam Chomsky, *Aspects of the Theory of Syntax,* p. 3 .

16. *Ibid.,* p. 10.

17. Noam Chomsky, *Rules and Representations,* p. 25.

18. *Ibid.,* pp. 25-26.

19. Noam Chomsky, *Syntactic Structures,* p. 15.

20. Moore Terence and Christine Carling , *Understanding Language: Towards a Post-Chomskyan Linguistics* (London: The Macmillan Press, 1982) , pp. 76-81.

21. Noam Chomsky, *Syntactic Structures,* p. 100.

22. Noam Chomsky, *Language and Responsibility,* pp. 57-58.