Linguistics as a science*

By Victor H. Yngve

Bloomington: Indiana University Press, 1986

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The aim of this book is no less than to lay a new foundation for linguistics, and turn it into a "real"science. The alternative would be that linguistics "turns back to philosophy and renews its dependence on logic and the theory of knowledge".

The author—professor of information science, linguistics, and behavioural science at the University of Chicago—sets out by raising some questions about the intellectual health of the discipline of linguistics and its status as a science. He points out that none of the existing types of grammar seems to offer an adequate description of the phenomena shown by communicating people. There is an ever-widening series of diverging points of view in linguistics, a situation which has been called a "post-revolutionary chaos" (Binnick, 1981). The author discerns an undercurrent of uneasiness among linguists, a feeling that they may have lost their bearings. Decisions regarding the details of linguistic theory, or even what brand of linguistic theory to accept, seem in his view to be influenced by personal preference, tradition, or allegiance to some school of grammar rather than by the external objective evidence or the criteria of science (and science should be understood in the sense of empirical science such as modern physics, chemistry, etc.). Even a definition of what linguistics is seems to be lacking, or at least there is no consensus about it. The only definition that linguists might agree on is that linguistics is what linguists do.

Thus, one of the fundamental problems the author sees is the definition of the object of study. Linguists see their discipline as a science studying language, but what is language? It lies behind the phenomena of communicating individuals. Language is conceived as a relation between sound and meaning, a system or code behind particular utterances or texts, postulated on the basis of available evidence. It should have predictive power, should be described in terms of grammar and lexicon, and incorporate a series of levels typically involving phonology, morphology, syntax, and semantics. The point the author wants to make is that the object of study, language, seen as an abstract system underlying linguistic communication, is in fact created by a certain point of view. There is no empirical evidence for it. The only empirical evidence we have is the fact that people communicate in different ways. This alleged misconception as regards the object of study of linguistics is labelled throughout the book "the fallacies of the psychological and social reality of grammar" (e.g. p. 28). It can in part be explained by the grip of tradition (philosophy) on linguistics. The goal of linguistics as a science is incompatible with the goal of studying language and in the author's view there are two coherent alternatives: either grammatical linguistics as a kind of logic or philosophy that would be disciplined by grammar and study the objects of language (not people), or scientific linguistics that

*Price: Paper US $9.50; cloth US $25. ISBN 0-253-33439-X.

would be disciplined by science rather than by grammar and study people, individually or in groups—the people that communicate. The author opts for the second alternative, the one he calls "human linguistics" (p. 38). The importance of this choice can best be illustrated by a rather lengthy quotation from the book itself:

> Let us take stock of where matters stand. To continue with business as usual is ruled out because the goals involved are mutually incompatible: The goal of disciplining our studies by grammar is incompatible with the goals of disciplining them by science because the objects of language are not objects of nature given in advance; they are only created by a point of view. The goal of studying language is incompatible with the goal of seeking explanations in terms of people because of the psychological and social reality of grammar fallacies. Language and people exist in different domains altogether. Since a linguistics based on incompatible goals is incoherent, we are driven to choose either the goal of studying language or the goals of disciplining our studies by science and of seeking explanations in terms of people. Of these two coherent alternatives the first, pure grammar, is not appropriate for linguistics because it does not confront the evidence in its domain. It lacks contact with reality, and it does not lead to satisfying explanations. Thus we are driven to the second alternative, a scientific linguistics focused on people, rather than a philosophical linguistics focused on language.
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> Another way to approach it is in terms of the entities or objects studied. Both the first alternative and business as usual would study the assumed objects of language, while the second alternative would study only people. First there is the ontological argument. Since on the first alternative and in business as usual we are dealing with human language, which presupposes the existence of people anyway, and on the second alternative people are the only entities needed, any assumption of the objects of language would multiply entities beyond necessity and would be rejected by the principle of ontological parsimony (Occam's razor). But beyond this, and more decisive in ruling for the study of people in the second alternative rather than the study of the objects of language in the first alternative or in business as usual is the empirical argument. In the test of theory against observation, the existence of people is confirmed by observation by the senses. They can be observed and studied from a linguistic point of view and from nonlinguistic points of view as well. But this test fails with the objects of language. They cannot be observed by the senses or studied from different points of view. They have no existence independent of theory. Thus again we are driven to the second alternative.
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> But this means giving up the traditional concepts of language and grammar around which the discipline has always been focused. This is a rather strong sobering prospect.
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> It is not surprising that linguistics would have to give up firmly held concepts and methods from an ancient philosophically based tradition if it aspires to become a science, for science does not knowingly tolerate unsupported assumptions. The more highly developed sciences, when they crystallized out of philosophy, also had to give up preconceptions deeply rooted in prior philosophical thought or long preserved in the folk culture. Recall, for example, the problems of a geocentric astronomy, the crystalline spheres, the immutability and perfection of the heavens, the prime mover, the earth as a living being, the flat earth with edges, astrology and divination, alchemy, special creation, pneuma or the breath of life, speaking from the heart, vitalism, spontaneous generation, the luminiferous

> ether, and many more. These all represented older assumptions that could not be justified by the evidence and had to be given up by science, a move that often met with considerable resistance from entrenched authority and received opinion but won out in the end. If linguistics opts for science and gives up studying the objects of language because they are only created by a point of view, it will not so much be giving up its object of study as finally acknowledging its true object of study, people. (p. 42–44)

So linguistics needs a new foundation: the scientific study of how people communicate, or to put it in Yngve's terms: the study of communicating individuals and linkages. A linkage is a group of communicating individuals. Communicating individuals are defined in terms of (mostly binary) properties that reflect only those aspects of real persons that are relevant to understanding how they communicate. There are parallels and correspondences with the linguistics of language, but the reader is urged to take care not to be confused by the psychological and social reality of grammar fallacies. A number of laws are formulated that make this study possible, e.g. the law of componential partitioning:

> The communicative aspects of a person, or of a group and the communicatively relevant parts of its environment, can be represented as a communicating individual, or a linkage, in terms of a set of component properties in respect to which different individuals or linkages show partial similarities and differences and in respect to which the same individual or linkage shows partial similarities and differences at different times. (p. 52)

An individual or linkage is described in human linguistics in terms of dynamic causal state theory. The dynamic aspect refers to the changes or transitions in the state of the system during the process of communication. It is a causal system, as transitions in its state are triggered by the environment (other people, the setting, the history of the system, expectations about the communication process etc.). One of the advantages of the state approach is the representation of context, history etc. in a certain state of the system so that there is no need for an explicit memory component. Other laws are formulated such as the law of small changes (only relatively few properties change at any given time), the principle of continuity of component properties (a property remains the same unless caused to change) and the law of restricted causation (the number of component properties involved as causes in the changes of any given component property is small).

The human linguist's toolbox further contains setting expressions, setting procedures, and logical notation and manipulation of properties, expressions and procedures. There are four kinds of properties (conditional, categorial, procedural, foundational). The grammar rules traditionally found in linguistic theory are in a sense replaced by setting procedures that manipulate these properties. An important principle in human linguistics is the principle of equivalent componential histories (not necessarily identicial histories, but resulting in comparable states of the system) that enables people to understand (and misunderstand) each other. The binary nature of the properties of communicating individuals facilitates the testing of human linguistic theories by means of computer simulation.

The scope of human linguistics is very broad indeed, as it covers the full range of verbal and nonverbal communicative phenomena. It even promises greater insight into "the human mechanisms underlying the poetic and artistic qualities we value so highly

in the best writing" (p. 103), and potentialities for understanding the nature of bilingualism and translation.

This is a book that will probably elicit rather strong feelings in any linguist reading it, for some of the fundamental concepts of linguistics such as the view of language as an abstract system underlying linguistic communication are fiercely attacked by the author. But certainly new theories should be given a chance to develop, and whatever one's view, this book provides some rather fascinating reading. It will certainly present a challenge to the reader as regards his own position.

Concerning the feeling of uneasiness and the "post-revolutionary chaos" the author finds among linguists, I must say that this feeling is rather familiar to me. Through the years an enormous number of linguistic theories in the various sub-disciplines have emerged and their number only seems to increase further without any definitive decisions being made for or against any of them. When looking at e.g. theoretical phonological theories from a phonetic point of view, I sometimes get the impression that those theories have become autonomous organisms themselves and that the actual object of study has become the theory, not the linguistic reality that it is supposed to describe and explain. Also, it is well-known in linguistics that almost any example given in support of a grammatical theory may be countered by another example, given the right context, and if the right context does not come readily, you just invent it.

This results in vague and very general statements about the objects of study of linguistics, e.g. about phrases and sentences: "Phrases and sentences are descriptions of (real or imaginary) states of affairs in a possible world". But what is there, that cannot be imagined, and which world is impossible? In other words, anything goes. It may be that the objects of language are just intrinsically very complex, more complex than for instance the objects of physics (a view that is held by some linguists), or there may be a fundamental problem with the discipline as Yngve states. Is it true that the objects of study of linguistics are created by a certain point of view? It is certainly true that language (seen as the underlying system) cannot be directly observed by the senses, as is the case for e.g. stars and planets, but this need not imply that the discipline is unscientific. Take e.g. the case of mathematics. I think no one will doubt the scientific status of the discipline (a very old and respectable one as a matter of fact), yet it is concerned with such intangible things as complex numbers (having a real and an *imaginary* part) which certainly cannot be observed any better than an abstract noun phrase. And one of the basic parts of mathematical systems is "A collection of undefined 'things' or 'elements', considered only as abstract entities" (Hays, 1981). Yet physical theory relates these abstract entities to reality, e.g. when describing the properties of a soundwave, just as linguistics relates the abstract NP to reality when describing a human utterance. But I agree that linguistics could benefit from a more empirical approach towards the phenomena under observation, be it language or communicating people. Let us make the exercise of trying to view the process of human communication from the human linguistics point of view (which is often reminiscent of behavioural theories because of its focus on observable phenomena). What we must observe are the things we have empirical evidence for: the people that communicate. But then a question immediately springs to mind: what exactly are we to observe about communicating people? What are the relevant aspects of communication, and how do we go about observing them? Observation is inevitably always guided or distorted by expectations and theory or point of view. This observational problem is of course not limited to the domain of human linguistics. All sciences have to come to terms with it, also the "more

highly developed" ones as Yngve labels them, but the problem remains. The problem is the greater for a science such as human linguistics since it wants to start out with a *tabula rasa* without any preconceptions as to what we should expect to see and observe.

This brings me to the next issue: the properties used by the author to describe communicating individuals or linkages. It is of course a good thing to be able to describe a complex phenomenon in terms of a set of manageable properties, an idea that is by no means unfamiliar in current linguistics (cf. e.g. the distinctive features used in phonology and phonetics to classify phonemes and allophones). But the question is how to find out which properties to use, are they intrinsic properties of communicating people or are they just unlabelled things that we use for ease of classification only? Are there any discovery procedures for these properties? This is of course merely an instantiation of the general observational problem mentioned before. The author does not answer these questions, which leaves me unsatisfied. The features are binary, which is of course very convenient for use in computer simulation, as the author casually remarks. It is far from me to doubt the usefulness of computers and simulation in linguistic research, but I cannot help wondering whether the computer simulation is seen here as an instrument for testing the theory, or the other way round.

The theory further promises to shed light on some old and very interesting problems such as the mechanisms of metaphor and poetry, bilingualism, translation and more. I would be very interested to know how this can be done within the described framework but unfortunately we are again left in the dark.

Summing up I would say that this is a very interesting, stimulating and thought-provoking book, but it lacks explanations as to how the theory proposed can be brought to work for us. I am willing to accept its potential usefulness but I do think many of the concepts and methods outlined here need filling in. I hope that subsequent books will do just that. This book is in any case recommended reading for anyone who takes linguistics seriously and that is the least one can expect from any linguist.

References

Binnick, R. I. (1981) Review of *Modern Linguistics*, by N. Smith and D. Wilson, Language **57**, 182–183.
Hays, W. L. (1981) *Statistics*, Holt, Rinehart & Winston: New York, 3rd edn.