GENERAL

CONTRASTIVE ANALYSIS AND THE MODERN THEORY OF LANGUAGE

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INTRODUCTION

In any science systematic observation is possible only within the framework of some explicitly stated theory. The subjects of an inquiry depend on the theory and are formulated in terms of a given theory. The data themselves only to a little extent suggest the possible topics and methods of investigation. In fact, there are no such things as pure data. The results of any observation are contingent not only upon the limitations of sense organs and various instruments, but also upon the observer's preconceptions, expectations, and goals. The connection between data and theory is measured in terms of the level of abstraction which the theory represents. In a low-level theory which aims merely at the classification and summary of the data the influence of data on the choice between significant and insignificant facts is much greater than in a higher level theory [1]. In high-level theories which are largely deductive and which aim at constructing general laws for the explanation of data, the theory and the data are remote from each other. it is obvious that for the same data more than one theory are possible. They can differ among themselves in their explanatory power, their truth relation to reality (as represented by the data), the range and value of predictions, etc.

If Contrastive Analysis (CA) is defined generally as a method which enables the differences and similarities between languages to be stated explicitly [2], its task can be approached in many different ways depending upon the theory of language to which the investigator adheres. The results of investigation will differ to a considerable extent because the task itself, especially the terms "difference" and "similarity", will be understood differently in two different

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[1] The terms 'low- and high-level' theory are used in the sense of Verhaar 1970.

[2] This is the most generally accepted definition of CA see, for instance Di Pietro (1971). He does not, however, mention similarities.

theories. For instance, the structural linguist will apply these terms to the surface phenomena such as sentence structure, modification structures, and the like. The analyst who thinks in terms of the transformational theory of language will compare rules which relate the common deep structure to different surface structures rather than compare directly the surface elements of two languages.

Apart from the divergence resulting from opposite methodological approaches to language and reflected in different formulations of the immediate goals of the analysis, differences can also be found in the philosophical assumptions underlying each school. These differences will influence the final goal of the investigations. It may be expected that structuralists will emphasize the differences among languages, whereas transformationalists will look for the evidence that languages are, after all, 'cut to the same pattern'. Since American descriptivism has its roots in anthropology, it not only retained some of the methods of this discipline but also the general view about the diversity of human cultures reflected at least to some extent in languages. The structuralist's philosophical outlook is mainly relativistic: the weaker (if not the stronger) version of the Sapir-Whorf hypothesis is usually accepted. On the other hand, the transformational school has close connections with some trends of modern philosophy and logic. It's method is deduction rather than induction employed by structuralists, and its philosophical basis, stemming from the Cartesian line of thought, is absolutist: when analyzed at a high level of abstraction, languages are alike. The search for universal linguistic features is the primary objective of transformational grammar.

If transformational grammar were already adequately formulated, the task of CA would be to compare the ways in which common underlying structures are realized as different surface structures. But since such objectives cannot constitute reasonable immediate goals, given the present state of the transformational theory, intermediate goals have to be formulated. One of such goals is finding sub-universals by comparing pairs and larger groups of languages. Proper contrastive studies should be based on a universal grammar, and particular grammars should be constructed by means of the same theoretical apparatus for all languages.

Not every model of language can be employed as a framework for contrastive investigation. Models vary with theories and theories depend on goals; hence, different results should be expected in case of each model. It is not the question of which model is better, because without any further qualification such a question is meaningless. One cannot judge one theory in terms of another theory. We can only ask about the degree to which the goals postulated by a given theory have been achieved. If the methods devised by structuralists are appropriate for the description of language, according to their conception of language, it is improper to accuse them of insufficiently

describing language in the transformationalist understanding of what language is. One can only argue about what should be the subject of linguistics, i.e. about the goals of linguistic investigation. In evaluating any scientific activity these two criteria should be kept apart:

1. whether the question raised by the scientist has been answered satisfactorily in his theory,
2. whether the question itself was worth pursuing (Starosta 1969: 100). The second criterion is difficult to be evaluated. One of the important factors involved here is the usefulness of the theory. If the scientist is interested in the relationship of language to the organization of the human mind, then he sees the problem of discovering and describing the deep structures as the interesting one.

Likewise, an evaluation of a linguistic theory can be made only with reference to its goals. If the primary object of CA is taken to be the immediate help in foreign language learning and teaching and if language is conceived of as a system of various items, then the structural method of systematic enumeration of the similarities and differences between two language systems is sufficient. If, on the other hand, CA is to serve not only as a basis for language teaching, but also as a contribution to the general theory of what a human language is, and if languages are viewed as surface realizations of one common 'universal language' whose properties are in strict correlation with the properties of the human mind, then the analysis has to be performed within the framework of transformational grammar. The whole question of the choice between structural linguistics and TG (or any other theory of language), between one or the other type of CA, boils down to the question of what language is. The views concerning the learning and teaching of languages are contingent on the answer to this question.

Transformational theory of language constitutes a better framework for CA than any other theory of language for these two general reasons:

1. it makes psychological claims, i.e., claims that the organization of grammar reveals some aspects of the organization of the human mind,
2. it gives one common theoretical vocabulary for the analysis of all languages, so that different surface phenomena can be accounted for in a uniform way. (Otherwise, it is improper to compare, for instance, an inflected language and an uninflected one in terms of the surface categories, such as cases, which occur in one of them).

Even if the most modest claim of Chomsky's mentalism is accepted (and possibly it could be accepted by most everyone), i.e., the claim that language reflects some properties of thought and that properties of thought are common to the whole mankind, the CA which takes into account this claim is superior to any other which does not.

In accordance with what has been said above, we cannot agree with

Nickel's comment on the use of language models in contrastive studies, especially with the first sentence of the fragment quoted below:

> The use of traditional descriptions will certainly lead to *quicker results*. (underlining mine). A danger inherent in some sophisticated framework such as transformational generative grammar is that the proponent of such a model may easily loose sight of the practical aims he had in mind when starting his investigation. However, the results of more formal and explicit approaches may well be more impressive in the long run (Nickel 1971 : 2).

'Quicker results' could be an evaluation measure of methods and theories only if the results obtained by different methods were equal in value. And this is not the case. In the case of traditional descriptions no special contrastive studies would have to be evoked, because it would mean only a more complete and explicit account of that knowledge which has been, sometimes implicitly and sometimes overtly present in foreign language textbooks and grammars for ages. We will present some postulates for CA in the final part of this paper.

The main argument of this paper can be summarized as follows:

IF   1. CA depends on a general theory of language,
        2. transformational theory is the best from the now available theories for the purposes of CA,
        3. the general development of the theory depends on the systematic comparison of many languages,

THEN 1. the general philosophical and methodological assumptions are common to both CA and the transformational theory of language and so are the controversial points concerning some of these assumptions,
        2. the widening range of language phenomena analyzed by transformational linguists indicates new ways of comparison of languages,
        3. the comparison of grammars of different languages, especially those from outside the Indo-European family, may lead to important changes in the ways of explaining grammatical phenomena in other languages, and thus to substantial changes in the general theory of language.

So far, since most of the transformational works were based on English material, some of the rules were capable of accounting for only the facts of English and some related languages. Many grammatical arguments were based on the surface characteristics of the English language, and the conclusions drawn were invalid for other languages [3].

The main objective of this paper is to discuss the features of the modern theory of language, especially those aspects which have the most immediate bearing on the methods of CA, and then, in connection with this discussion, to present some postulates for CA. In the subsequent sections the following topics are treated:

I. Linguistics and other disciplines — goals and methods of investigation.
II. Main theoretical assumptions of TG.
III. Main methodological principles of TG.
IV. Some related philosophical views on language.
V. Controversial issues of TG.
VI. The Generative Semantics approach to language.
VII. The implications of modern linguistic theory for the contrastive studies.

I. LINGUISTICS AND OTHER DISCIPLINES GOALS AND METHODS OF INVESTIGATION

Like any science linguistics aims at knowledge, not just a common sense knowledge of the world, which is given to us in natural ways and the acquisition of which is the subject of cognitive psychology, but scientific knowledge, i.e., such knowledge that, given a phenomenon A, we are able to say of which general law is the occurence of A an instantaneous case.

Generally speaking one might distinguiush three aspects of reality — physical, social, and psychological — and at least five moods of knowing reality (each distinct from the common sense knowing). These five moods, as they are enumerated by Henle (1969) are: humanistic, scientific, philosophical, mathematical and theological. Various disciplines, according to the aspects of reality they are interested in, approach their subject matter from the point of view of one of these moods. The nature of language, however, (its high abstractness, its social origin and functions, its individualistic uses) makes the position of linguistics among the other disciplines a little unclear.

Thus, although language is a social product and performs various functions in the human society, there is no reason to classify modern linguistics as one of the social sciences. Neither is the subject matter — the rules producing grammatical utterances — of any interest for the social scientist, nor are

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[3] For instance, the old agrument that the deep structure of imperatives contains such elements as the second person pronoun and the future auxiliary, because these elements are present in tags and reflexives, is not true for Polish:

E. *Eat this apple, will you?*

P. *Zjedz to jabłko, dobrze?*
E. *Wash yourself* (vs. *I wash myself, he washes himself*, etc.).
P. *Umyj się.* (vs. *Ja myję się, on myje się*, etc.)
The argument does not hold for Polish, because there are no tags in Polish and because the reflexive particle *się* is the same for all persons.

the messages conveyed by language and their social functions of any (except marginal) interest for linguistics. The methodological problems of the social sciences, such as the cultural relativity of its laws and the value-bias of the inquiry, are not shared by linguistics either.

If, on the other hand, language is analyzed in terms of human behavior (verbal behavior) as a product of the stimulus-response mechanism, it becomes the subject of psychological investigation. The behaviorist approach has been proved to interpret incorrectly the nature of the phenomenon of language. Transformational grammar is a strong reaction to the behavioristic treatments of language. The limitations of behaviorism as a method of explanation of human behavior have been severely criticized. With reference to language the main criticism was expressed by Chomsky, especially in his review of Skinner's *Verbal behavior*. In *Language and mind* (Chomsky 1972: 4) he states that:

> The stimulus-response psycholinguistics or automata models for language use were demonstrated to be inadequate in a fundamental way — the structures which are realizable in terms of these theories are not those which must be postulated to underline the use of language.

From the non-behavioristic position the basic mistake of behaviorists is that they did not postulate any mental mechanism underlying organized human behavior, linguistic behavior included. The transformational theory of language assumes the existence of such an underlying mental structure common to all people. The study of language makes access to this mental reality possible. Thus, the linguistic theory is supposed to contribute to the general knowledge about the mental capacities of man rather than to the knowledge of his linguistic behavior.

Linguistics does not represent a humanist approach to language. Unlike, for instance philology, it is not interested in the individualistic traits in the use of language, but in all these properties which are common to all users of a given language, and further, in all these properties which define the notion of human language as such. The interest of a linguist in man is much more similar to that of a psychologist than of a humanist. And, certainly, linguistics does not apply the typical humanist method of 'verstehen' which was proposed to be applied in any discipline dealing with the human and the social as opposed to the material. This method based on the principle that we can understand the behavior of men by being able to share their "state of mind" can hardly be used as a scientific tool because it is not a method of verification[4]. Linguistics claims to be an empirical science and as such it aims at true statements by means of formulating testable hypotheses. Like any other empirical

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[4] For a brief discussion of the method of 'verstehen' and its scientific value, cf. Abel (1953).

science it is a mixture of theory and observation, the transformational grammar is in fact highly theory-oriented. It has been criticized on this account on several occasions, the main point being that TG is overburdened with hypotheses and theoretical assumptions and too little attention is paid to making its criteria and methods more explicit, especially the criteria and methods of verification of its hypotheses[5].

In the next section the main theoretical assumptions of TG are presented, based primarily on Chomsky's works. Since these assumptions are generally known we shall enumerate them briefly and later concentrate on some controversial issues.

II. MAIN THEORETICAL ASSUMPTIONS OF TG

1. The primary goal of the linguist is to describe the competence of the ideal speaker-listener. The descriptive counterpart of the speaker's competence amounts to *a theory*, hence the terms 'grammar' and 'the theory of language' are often used interchangeably.

2. The distinction between competence and performance and the emphasis on competence means that linguistics, like other sciences, works with *abstractions* in the sense that it does not attempt to give a mere inventory and classification of actual utterances, but it wants to find general laws according to which particular utterances are formed.

3. Linguistic theory deals with an ideal speaker-listener. This means that like other sciences linguistics makes *idealizations*. The basic idealistic assumption is that performance is a direct reflection of competence. The 'imperfections' of performance, such as the fact that actual discourse consists of interrupted fragments, are disregarded. As a result of this assumption the items that the transformational grammar generates are not utterances of which the actual discourses are composed, but they are items which the native speaker knows to be well-formed sentences of his language. As Hiż (1967: 68) puts it:

> ...linguistic laws are not mere generalizations of 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.

4. Transformational theory makes three *basic assumptions about language*:
a. the set of sentences of a language is recursively enumerable and so are their respective relevant structures, hence the task of grammar is to provide a finite set of rules by which these two sets are recursively enumerated,

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[5] Such was the criticism by Quine (1970).

b. for each sentence two basic levels of analysis have to be distinguished
— the abstract deep structure and the surface structure of the sentences.
The rules of grammar relate these two levels one to another.

c. formal properties of deep structures are common to all languages,
so they need not be stated in particular grammars.

These properties form part of the notion of "human language".

5. Since, theoretically, sets of sentences of any language can be enumerated by more than one set of rules, the theory provides an evaluation measure: from a few competing grammars, each of which correctly accounts for the linguistic facts, the one to be chosen is that one which is also in accordance with the properties of universal grammar. If this condition is met, the grammar is said to have achieved explanatory adequacy.

6. The learning of a language is assumed to be closely connected with its structure. Chomsky draws a strict parallel between the language acquisition device and the model of generative grammar. The tasks of the linguist and the child are viewed as similar — to construct on the basis of primary data (such as sentences and non-sentences) a grammar which will generate infinitely many grammatical sentences.

> ... just as the problem of speech perception is in large part the problem of how the abstract underlying structure of a sentence can be inferred from a speech signal which is not isomorphic to it, so the problem of language learning is in large part concerned with how the child grasps the general character of the base structure, given that he has in experience only examples of structures derived from it (Saporta 1967 : 19).

7. Chomsky assumes that the child has some initial assumptions about the nature of language — innate schema — which allows him to select the proper grammar. To discover these innate principles is to discover linguistic universals. The two tasks:

a. to achieve explanatory adequacy in grammar and to contribute, thus, to the studies of human mental processes,

and b. to determine the abilities that make language learning possible under the empirically given limitations of time and data

are closely related one with the other.

8. Although linguists are interested in mental processes underlying speech, generative grammar is not to be treated as a *model of speech production* and its rules are not to be taken as rules corresponding to the mental acts which must be performed by an individual in order to utter a given sentence. Yet, as Chomsky emphasized in many places in his works, the development of transformational theory is a necessary prerequisite to any serious study of language acquisition and related psychological problems. Saporta (1967 : 21) makes this point clear:

While it is necessary to stress the logical differences between grammar and a model either of speech perception or of speech production, it is also worth pointing out their methodological interconnections. All other things being equal, one would wish for a model of the grammar that makes the simplest possible development of a theory of its application in speech perception and integration.

9. Transformational grammar claims to be a *realistic* theory (as opposed to the instrumentalistic position) and, thus, the question about the relationship of the theory to reality in terms of truth is a relevant one. The reality to which the linguistic theory refers is the mental reality underlying actual behavior. The statement that linguistic theory *is mentalistic* means that the theoretical entities employed by the theory, such as deep structure and transformations have observable effects outside the theory; for instance, they may have certain psychological consequences. Mentalistic claims made by linguistics are indirect and cannot be tested in their original form. If they are correct, it is possible to derive from them testable psychological hypotheses (Botha 1968).

10 The great interest in the problem of the acquisition of language and generally in the *acquisition of knowledge* is a characteristic feature of the transformational theory. The extreme position is taken by Chomsky who calls linguistics a branch of cognitive psychology (Chomsky 1972). As one of the goals of linguistics Chomsky sees the determining of the universal language independent constraints on semantic features, i.e. "the system of possible concepts" (Chomsky 1965: 159 f).

The relationship between language, on the one hand, and mental concepts and reasoning processes, on the other hand, is even more strongly emphasized by the representatives of the Generative Semantics view. Unlike Chomsky, however, they do not stress so much the role of innate ideas in acquisition of knowledge. Chomsky's *rationalistic* assumptions about innate schemata have been recently criticized by philosophers. We will return to this matter in section V of this paper.

11. As far as the *internal organization of grammar* is concerned, the theory was changed several times since the publication of *Syntactic structures* in 1957. The most crucial changes were the following ones:

a. the incorporation of the semantic component into transformational grammar,

b. the acceptance of the requirement that transformations preserve meaning and the replacement of the previously optional transformations, such as transformations forming questions, imperatives, and negative sentences, by obligatory transformations,

c. the change of a generative-syntax to a generative-semantics approach and the identification of the deep structure of the sentence with the logico-semantic representation,

d. the shift of emphasis from the problem of formalizing grammatical rules to the problem of demonstrating the correctness or incorrectness of specific structural descriptions.

III. MAIN METHODOLOGICAL PRINCIPLES OF TG

1. Data in TG

Data for linguistics are physical events — sentences and non-sentences — together with the native speaker's intuitions about these events. These data are taken either directly from the corpus or they are arrived at by linguists by means of manipulation with sentences. The intuitions about the sentences are expressed in terms of such pre-theoretical statements as: "repetition", "ambiguous", "paraphrase", "grammatical", "ungrammatical", "meaningless", etc. Introspective evidence plays an important role in TG. The intuitional criteria are regarded to be sufficient. Chomsky, for instance, considers the replacement of the criteria based on intuition by operational ones to be unnecessary. In the chapter "Linguistics and philosophy" of his *Language and mind* (Chomsky 1972 : 186) he states:

> I have no doubt that it would be possible to devise operational and experimental procedures that could replace reliance on introspection with little loss, but it seems to me that in the present state of the field this would simply be a waste of time and energy. Obviously, any such procedure would first have to be tested against the introspective evidence.

2. Argumentation in TG

There are two main immediate goals for linguistics: postulating deep structures for sentences and discovering rules which relate these deep structures to their corresponding surface structures. The basic principle according to which the analyst should proceed in order to succeed was formulated by Katz and Postal (1964 : 157) and, with some slight modification, is still retained. This principle is the following one:

> Given a sentence for which a syntactic derivation is needed, look for simple paraphrases by virtue of synonymous expressions; on finding them construct grammatical rules that relate the original sentence and its paraphrases in such a way that each of these sentences has the same sequence of underlying P-markers.

The identity of meaning between sentences used in such analysis is of great relevance. Some formal co-occurrence relations shared by two constructions do not provide a sufficient basis for assuming one common underlying structure for both of them. For the purpose of illustrating this point let us recall the treatment of imperative sentences in early TG.

In the early approach the assumption was made that an imperative sentence such as 1:

1. *Eat it.*

has the underlying structure *You will eat it*, because the entity *you* occurs in imperative reflexives (*Wash yourself*) and both *you* and *will* are present in the tag questions added to imperatives (*Eat it, will you?*). Katz and Postal (1964) observed that although declarative future sentences and their corresponding imperative sentences have related meanings, these meanings are not the same. They found it incorrect that two sentences with different meanings should have the same deep structure. In their new treatment of imperatives, sentence 1 is paraphrased as: *I request that you eat it*. This paraphrase is assumed to be a correct approximation to the deep structure of sentence 1.

The new hypothesis about the deep structure of imperatives is better than the old one, not only because the requirement of the same meaning of the deep and surface structure is met but also because this hypothesis has greater explanatory value. It explains some other grammatical phenomena related to imperatives such as the non-occurrence of stative verbs in the imperative and the ungrammaticality of imperative sentences with some sentence adverbials. These co-occurrence restrictions are shared by imperatives and the request constructions, and they are not shared by imperatives and the you-will-constructions as sentences 2 - 7 demonstrate:

2. **Want to do it.*
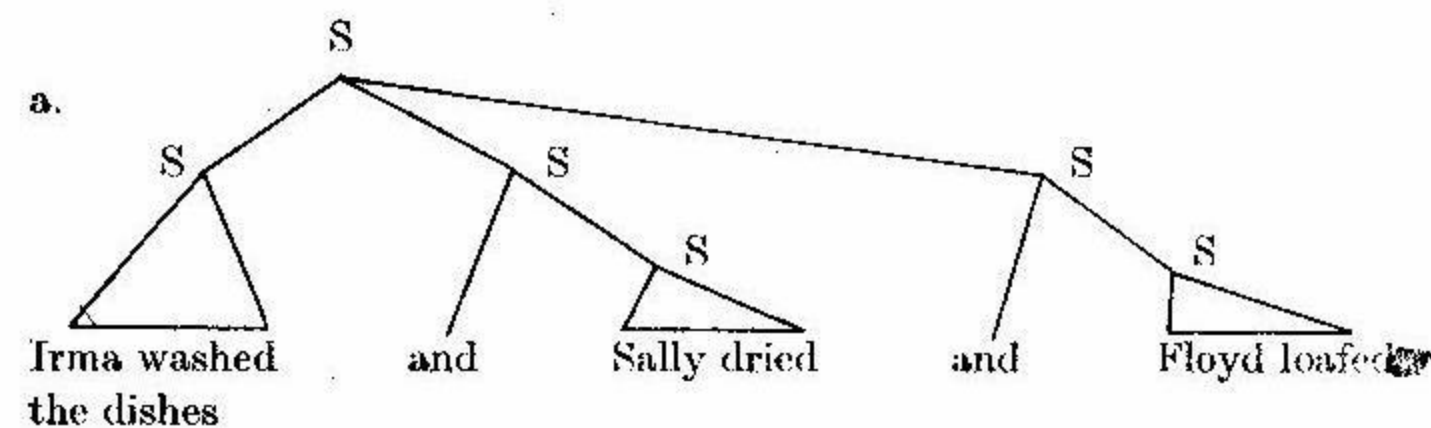3. **I request that you want to do it.*

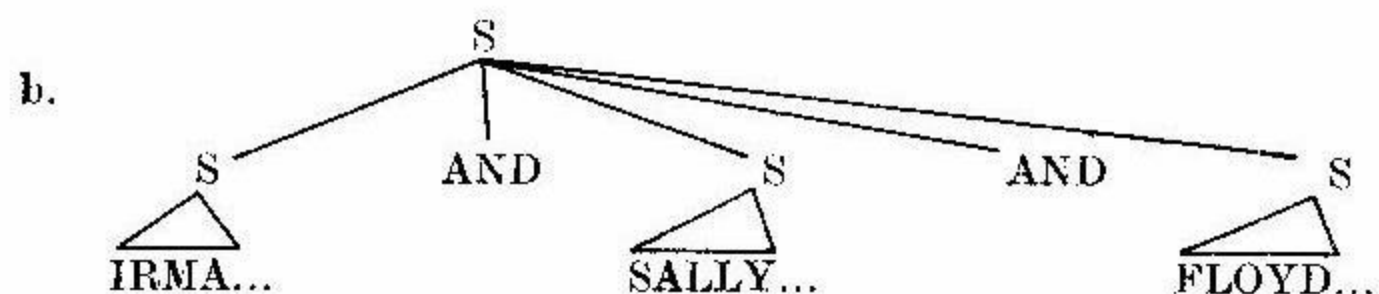But 4. *You will do it.*

5. **Maybe drive the car.*
6. **I request that maybe you drive the car.*

But 7. *Maybe you will drive the car.*

Another type of grammatical argumentation may be illustrated by Ross's discussion of the deep structure representation of conjunction (in Ross 1968). He argues that structure *a* and not *b* ought to be taken as a correct representation of some deeper level in the derivation of a sentence like 8:

8. *Irma washed the dishes, and Sally dried, and Floyd loafed.*

b.

```
                    S
         ┌────────┬────┬────────┬────────┐
         S      AND    S      AND        S
        /\            /\                /\
      IRMA...       SALLY...          FLOYD...
```

Ross assumes that the initial underlying structure of sentence 8 is something like c:

c.

```
                S
          ┌─────┼────┬────────┐
        AND    S₁   S₂        S₃
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This structure is changed to structure *a* by a rule of conjunction copying which copies the conjunction and Chomsky adjoins it to S_1, S_2 and S_3.

The syntactic reasons for choosing structure *a* rather than *b* are the following ones:

1. When the conjoined sentence is broken into two sentences, the conjunction is attached to the second sentence:
   9. *John left and he didn't even say good-bye.*
   10. *John left. And he didn't even say good-bye.*
   11. **John left and. He didn't even say good bye.*
2. In languages in which enclitics can replace coordinating conjunctions (-que in Latin, aber in German) these enclitics are always inserted into the second conjunct:
   12. *Sie will tanzen, aber ich will nach Hause gehen.*
   13. *Sie will tanzen, ich will aber nach Hause gehen.*
   14. **Sie will aber tanzen, ich will nach Hause gehen.*
3. Intonation pauses occur before coordinating conjunctions:
   15. *Tom and Dick, and Harry, all love watermelons.*
   16. *(Tom) (and Dick) (and Harry)...*
   17. **(Tom) (and) (Dick) (and) (Harry)...*

Arguments similar to the two quoted above are numerous in linguistic literature. An already classical argument concerning the deep structure of sentences with instrumental adverbs (Lakoff 1967) was analyzed in detail by Botha (1968). He proved that the form of grammatical argumentation is a methodologically valid solution of the problem of the confirming and disconfirming of hypotheses about structural descriptions of sentences.

3. Testing of hypotheses in TG

Since the hypotheses about deep structures and the rules relating deep structures to surface structures do not refer to observable phenomena, their testing is indirect. From these hypotheses statements about observable phenom-

ena, i.e. sentences of the language, are inferred. The deep structure and the derivational rules are said to be correct if the derived structure is judged to be a grammatical sentence of a given language. Thus the linguistic intuition of the native speaker is the final and decisive criterion for testing grammatical hypotheses.
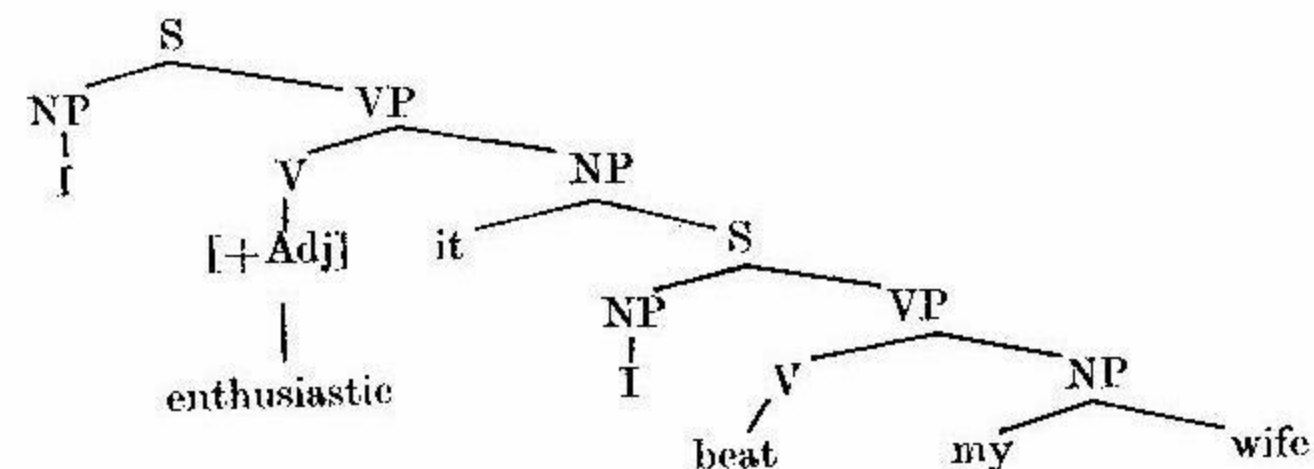
As an example of testing linguistic hypothesis we will consider here Lakoff's argument about the deep structure of sentences with manner adverbials. (Lakoff 1970 a). Lakoff's hypothesis is that sentences such as 18 have an adjective as the highest predicate in the underlying structure.

18. *I beat my wife enthusiastically.*

The derived hypotheses are the following ones:

1. If sentence 18 has an adjective instead of an adverb in the underlying structure, then it should be synonymous with sentence 19:
   19. *I am enthusiastic in beating my wife.*
2. if the adjective replacing the adverb of manner in the underlying structure is the highest predicate, then it should be this element which is questioned and negated, i.e., sentences 20 and 21 should be synonymous with 22 and 23 respectively.
   20. *I don't beat my wife enthusiastically.*
   21. *Do you beat your wife enthusiastically?*
   22. *I am not enthusiastic in beating my wife.*
   23. *Are you enthusiastic in beating your wife?*

Since the predictions about the synonymity of sentences in both cases are confirmed by the intuition of the native speaker, the following underlying structure is posited for sentence 18 [6]:

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                    S
          ┌─────────┴─────────┐
         NP                   VP
          │            ┌───────┴────┐
          I            V            NP
                      [+Adj]   it ┌──┴──┐
                        │          S
                    enthusiastic ┌─┴────┐
                                NP      VP
                                 │    ┌──┴───┐
                                 I    V      NP
                                     beat  ┌──┴──┐
                                           my   wife
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Quite independent evidence for the correctness of a linguistic hypothesis may be provided in some cases by experimental psychology. The transformational approach to language inspired many psychologists and psycholinguists with new ideas — methods and goals of experimentation with the linguistic behavior. Underlying the earliest investigations of psycholinguists working

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[6] The presentation of the whole argument is simplified here.

within the framework of TG was the so-called "correspondence hypothesis", according to which "the sequence of rules used in the grammatical derivation of a sentence corresponds step by step to the sequence of psychological processes that are executed when a person processes the sentence" (Hayes 1970 : 5). The majority of these experiments were designed to find out whether performative complexity mirrored competence complexity and whether the theoretical linguistic constructs, such as transformations, had psychological reality. The reasoning employed here had the following form: if claim x about the structure A or operation B was correct, then the reaction of the subjects to sentences with structure A or operation B should be such and such. This reaction was supposed to reflect the perceptual difficulties of the subjects.

The results of some of these experiments were summarized by Fodor and Garrett (1966). The experiments with the passive, negative and interrogative appeared to confirm the existence of these transformations. There were, however, also many experiments which gave negative results, i.e., the performance measures of sentence complexity did not correlate with the derivational history. For instance, agentless passives turned out to be easier to perceive than full passives, although according to the linguistic theory, an additional transformation, deletion, had applied. The lack of agreement between the grammatical theory and the results of the psycholinguistic investigations caused some scepticism among the psycholinguists. The correspondence hypothesis was abandoned. One reason for its rejection was that it was wrong from the very beginning, because it made an assumption that grammar is a kind of a performance model. This assumption was not only never made by transformational linguists, but even strongly opposed by them. The other reason for the failure of these experiments was that they were performed too early; many of them were based already on the *Syntactic structures* model, i.e., even before transformational theory had managed to work out its basic assumptions.

There is also another aspect to psycholinguistic investigations. When the correlation between derivational processes postulated by linguists and perceptual processes observed by psycholinguists was examined more closely, it turned out that some derivational constraints were in fact perceptual, that is, not grammatical. This idea was first expressed by Bever in his paper "The cognitive basis for linguistic structure" and later developed by Grosu (1971). Grosu argues that, for instance, Lakoff's transderivational constraint which blocks the formation of unacceptable sentences such as 24:

24. *John and Bill entered the room, and hé took off his coat.*
is a perceptual constraint of the following form:

> Sentences containing pronouns are incomprehensible if the antecedent pronoun cannot be discovered by any means whatsoever, or if there are two or more equivalent candidates for the position of antecedent (Grosu 1971 : 146).

He adds that for the recovery of the antecedent any piece of information shared by both the speaker and the hearer can be used. For instance sentence 25:

25. *John and Napoleon entered the room, and he said he was going to make war on Russia.*
is comprehensible on the basis of extralinguistic knowledge possessed by the hearer.

The problem of the use of experimental psychology for testing linguistic hypotheses is controversial, because although on the one hand linguists claim that their rules and structures should have psychological relevance, on the other hand the access to the psychological processes accompanying the speech production is extremely difficult, especially if we take under consideration that the experimenter has to rely almost exclusively on the statements of his subjects.

4. Criteria for evaluating the theory

As it was already pointed out above, the highest valued theory is the one which gives a basis for selecting one of the few competing descriptively adequate grammars. The evaluation of individual grammars depends, on the one hand, on the simplicity of description which involves generalizations, and, on the other hand, on the criterion of linguistic intuition which determines which generalizations about language are significant. No definite simplicity measure has been devised for any science so far; but Chomsky (1965), prematurely, as it seems, suggested that the length of rules, i.e. number of symbols appearing in the rules of grammar, should be taken as such a measure. The problem is not quite that simple, because a theory can be evaluated according to several different kinds of simplicity, such as logical, epistemological, semantical and notational. These criteria do not always coincide; for instance, notational simplicity, i.e. economy in using symbols, is achieved at the cost of higher semantical complexity, because the fewer symbols used, the greater their semantic content[7].

The principle of generalization reminescent of Occam's principle — "Frustra fit per plura quod potest fieir per pauciora" (what can be explained by assumption of fewer things is vainly explained by the assumption of more things) — is the dominant factor in the considerations of which rules are better in the theory. It is not only the problem of economy of description but an empirical matter too, because only those generalizations are accepted which reflect the native speaker's intuitions about the phenomena under consideration. Actually, of the two criteria for a linguistically significant generalization: conflatability of rules and the psychological validity of such generalizations — the latter one is difficult to prove, because some of the

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[7] For the various types of simplicity and their mutual relationship, cf. Bunge (1963).

psychological observations undermine well accepted linguistic generalizations. [8]

Postal's (1971) analysis of the English verb *remind* is an excellent example of the application of the principle of generalization in linguistics. Postal states that exceptions ought to be looked at as composita of regular cases, so that no special rules will have to be devised to account for them, but the rules already needed in the theory will be sufficient. Accordingly, he treats the otherwise unique verb *remind* as a composition of two semantic components *strike* and *similar*, because *remind* shares some of its syntactic features with *strike* and other features with *similar*. The features that *remind* has in common with *strike* are also features of a larger group of verbs, such as *seem, appear, impress, taste, perceive,* and also the features of *similar* are shared by a whole class of verbs (*resemble, like, identical, different*). Thus the rules which are necessary to derive sentences with *remind* are the same as rules necessary for the derivation of the sentences with these two classes of verbs, if we accept the *strike-as-similar* analysis.

The principle of generalization forbids the same rule to be stated twice in the theory. The following statement of Lakoff, with which he backs his conclusions that the rules of grammar and the rules relating surface forms to their corresponding logical forms are the same, is characteristic:

> It should be noted that both of the above conclusions depend upon a form of argumentation upon which just about all of the linguistics of the past decade and a half depends, namely, that if a given theory necessarily requires that the same rule be stated twice, then that theory is wrong. Not just inelegant, but empirically incorrect (Lakoff 1970 b : 159).

IV. PHILOSOPHICAL VIEWS OF LANGUAGE RELATED TO TG

It cannot be denied that modern linguistics took over many ideas from philosophy and logic and that many of its considerations aim at solving, if not directly than indirectly, certain philosophical problems. The two basic questions that philosophers ask about language are:

1. What is the relation of language to reality?
   and a related question:
2. What is the relationship between language and the human systems of knowledge?

In earlier philosophy knowledge and language presented no real problem — they were simply manifestations of reality. For instance, the authors of *De modis significandi* (Modistae) thought that there was essentially one grammar which reappeared in individual languages with some modifications. The philos-

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[8] However, Prideaux (1971) devoted his article to proving that 'linguistically significant generalization' is not an empirical concept, but purely formal. If this turns out to be true, it means that criteria for evaluating grammars are also only formal.

opher could know the details of this grammar by simply considering the ontological nature of things (Küng 1967: 23). The problem of mediation of human mind was neglected in this approach.

The old approach of philosophers was that of synthesis. The crucial problem was building up a world-picture out of some basic elements. Man's view of the world and his language were considered to be determined by experience. The outer world was regarded to be the cause of any experience and of any concept. The new approach is that of analysis. Philosophers are interested in breaking down the world-picture by progressive, logical analysis of language to its elementary basis (McKinney 1971). It is expected that the elementary units of language will lead the analyst to the structure of reality and the functioning of the human mind. In order to attain this goal ordinary language has to be translated into a logical form.

Leibnitz was the first philosopher to think about basing philosophy on a logistic analysis of language. He speculated about an ideal symbolic language which was to be used for the formulation of the principles of all human knowledge.

From modern philosophers the most interesting thoughts about anguage are those of Wittgenstein contained in his *Tractatus*. According to him there is a constant relationship between language and reality such that a sentence, or rather its logical form, is a picture of reality:

> The configuration of objects in a situation corresponds to the configuration of simple signs in the propositional sign (Wittgenstein 1921 : 3, 21).

For Wittgenstein the logical form is not merely the syntactic form of sentences, but it mirrors the ontological form of the world of facts. (Analyzing the structure of language he came to the conclusion that the world is a collection of facts, not things) [9].

Russell did not go as far as Wittgenstein, but one of his views on language is that languages reflect various presuppositions people have about the world. For instance, the duality of subject sign and predicate sign reflects an ontological categorizing into substance and attribute. In "Logical atomism" he argued that Western philosophy grew out of the idiosyncrasies of the syntactic structure of the Indo-European languages (Russel 1924) [10].

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[9] About Wittgenstein's views on language, among other sources see Küng (1967), and MacKinnon (1969).

[10] There is undoubtedly some influence of the native language of the philosopher upon his theory. An interesting example of this phenomenon is quoted by Küng (1967) with reference to Leśniewski's ontology. Leśniewski, unlike other philosophers, did not distinguish between names which can stand before *est* and those after *est*, because Polish, unlike English or French, has no definite article. Hence, sentences: *Sokrates jest człowiekiem* and *Sokrates jest Sokratesem* are not grammatically different, whereas *Socrates is a man* and *Socrates is Socrates* are different.

Another modern philosopher, Quine (1960), expresses the view (in *Word and object*) that language interprets sensory data and that the pre-theoretical character of objects is illusory. Theories of interpretation are embedded in linguistic structures. Explanation of the problem of human knowledge can be achieved only by means of the clarification of the way in which linguistic systems develop, are structured, and function. McKinney (1971) has a similar opinion. Knowledge is based on the data of sensory experience, but language gives rules of interpretation for these data.

> The word is the point of contact between discontinuities and indeterminancies of elementary individual experience and the body of common experience we call reality (McKinney 1971 : 39).

Like Quine, he argues that we cannot know Reality in itself but only a man-made conceptual scheme (and knowledge is a conceptual scheme shared by all members of a given community).

In order to answer the question "What are the basic constructs of our knowledge?" philosophers try to find the primary elements in ordinary language. The question is whether the primary language is an object language, i.e., whether the words of this language name things. This question was pursued by Russell (1940) and also by Laszlo (1965). According to Laszlo the problem of primary language is equal to the epistemological problem of "whether ordinary sense-objects are given in perception or are constructs from materials so given" (Laszlo 1965: 160). Questions about human cognition, similar to those asked by philosophers, are also asked by modern linguists, although the answer to them is not their immediate goal. The search for universal semantic primes may prove helpful for the solution of some philosophical dilemma. It cannot be also overlooked that some of the conclusions about natural language drawn by logicians and philosophers, especially from the school of Logical Atomism, recur in the transformational theory. For instance Russell's (1924) observation that there is no such entity as *Plato's love for Socrates* but only the fact that *Plato loves Socrates* underlies transformational approaches to constructions of this type.

V. CONTROVERSIAL POINTS IN THE THEORY OF TG

1. Intuition and grammaticality

Intuition of the native speakers about their language plays a very important role in linguistics, because intuition is used both in providing data and as a final criterion of the correctness of the theory. This "high" status of intuition in linguistic theory has often been questioned. The first problem which arises in this connection is whether the facts about language discovered by linguists can be considered to be objective. Reformulated, this question has the following form: "Can linguistics be regarded as a real science if it relies to such an extent on introspective evidence?". Chomsky's opinion is that the solution of this problem depends on the decision whether the important feature of science is objectivity or a search for insight. According to him, insight is more important than objectivity and, as an example, he quotes behavioral sciences which were not very successful in spite of the emphasis on objectivity (Chomsky 1965: 20). We can leave the problem of what is the important feature of science aside (and it seems that both features are equally desirable) because the real problem with intuition is whether we can assess the intuitions of the native speakers with the methods used so far, i.e., asking the subjects if a given sequence of words is a grammatical sentence, a paraphrase of some other sentence, etc. Judgements about grammaticality are subject to all sorts of confusion between grammaticality, acceptability and intelligibility. One of the problems involved here is that linguistic intuitions vary in their sensitivity according to the degree of education of the informant. Somewhere low on such a scale is a man who rarely has contact with the written language and whose judgements are based on conversational language in which complete grammatical sentences are relatively few. The opposite case is represented by professional linguists, who not only are better prepared to distinguish between grammatical and ungrammatical sentences, but who can also see problems which would never arise in the mind of an average man from the street. Thus, linguists may assign an ambiguous sentence four different readings in cases where ordinary people are aware of only one or two of these readings. They will also be more careful in judging which two sentences are paraphrases, because on second thoughts their scientifically trained minds are likely to decide that no two different sentences have exactly the same meaning.

The second problem, strictly connected with the one discussed above, is that there are no precise criteria for determining what "grammatical", "paraphrase", "nonsensical", etc., actually mean. Linguists presuppose that they and their subjects have a theoretical vocabulary in common; but such a precondition is usually not the case (unless the analyst asks himself the questions about the grammaticality or his colleagues from the linguistic department, which is a widely accepted practice). Usually when the linguist asks "Is this sentence grammatical? "the asked person answers according to what he understands by "grammatical" and not according to the linguist's sense of the term. In connection with this problem Fillmore observes that:

> ... it is difficult to see how a generative grammar can demarcate all and only the grammatical sentences in view of rather serious questions about the empirical determinability of that set (Fillmore 1970 : 15).

An interesting experiment designed to check the native speakers' sense of grammaticality was performed by Tikofsky and Reiff (1970). College students

were asked to rank fifty pairs of grammatically deviant strings. Five grades
allowed the evaluation of the string on the scale from complete acceptability
to complete unacceptability. The results of the experiment showed that:

1. Many strings were given all five marks,
2. There was no string which received the same rank from all subjects,
3. Individual subjects were remarkably consistent in their ranking.

Below I quote a few strings which were not given the "completely unaccept-
able" mark by anyone in this group and which were judged to be completely
acceptable by some students:

Peter jobs less man
Green primarily especially wood
Classes beyond with green
Group seven simply green

This points to the existence of different criteria used by people to judge ac-
ceptability. Some of these criteria, according to Tikofsky and Reiff (1970)
might be:

1. degree of situational adequacy,
2. similarity to some string to which the subject had previously responded,
3. the easiness of interpretation of a given string.

Not only are intuitions of native speakers often in conflict, but very
often they must be prompted. For instance, if it is difficult for the subject
to see the ambiguity of a given sentence, the linguist is forced to paraphrase
the sentence so that the other reading becomes more obvious. The ambiguity
of sentence 26 can be shown by the existence of two different passives corre-
sponding to each reading of this sentence (Saporta 1967):

26. *He is reading a letter to his mother.*
27. *A letter to his mother was being read by him.*
28. *A letter was being read by him to his mother.*

We shall conclude the discussion of the use of intuition in linguistic science
by quoting two characteristic statements on this subject. The first quotation
is taken from an article by Mason and Peterson (1967); the other one is from
Bever (1970).

> Although recent works by Chomsky (1965), Katz and Fodor (1964), and Katz and
> Postal (1964) deal at length with proposals for the organization of linguistic de-
> scriptions, they fail, however, to solve the rather serious problem of finding criteria
> for deciding which strings over the alphabet of a given language should be considered
> sufficiently well formed to require that they be included in a linguistic description of
> the language (Mason and Peterson 1967 : 108).
>
> Linguistic intuitions do not necessarily directly reflect the structure of a language,
> yet such intuitions are the basic data the linguist uses to verify his grammar. This
> fact could raise serious doubts as to whether linguistic science is about anything
> at all, since the nature of the source of its data is so obscure. However this obscurity
> is characteristic of every exploration of human behaviour. Rather than rejecting

linguistic study, we should pursue the course typical of most psychological sciences;
give up the belief in an "absolute" intuition about sentences and study the laws of
the intuitional process itself (Bever 1970: 346).

2. Competence

The assumption of TG that grammar is a description of the native speaker's
intrinsic knowledge of his language has also been criticized on several occa-
sions. First of all, it is not clear what it means that a speaker knows his language.
According to Chomsky it means that the speaker has an unconscious knowl-
edge of the rules of grammar which he uses in performance. If so, argues
Harman (1967) then the relation of linguistic behavior of a man to his knowl-
edge of the language is comparable to the relation of the skills of a bicycle
rider to his knowledge of principles of mechanics.

> We might imagine that a model of a cyclist would contain representations of the
> relevant principles of mechanics and that it uses these principles in calculating what
> needs to be done so as to retain balance. Then, following Chomsky's model, we
> might say that the cyclist has an internal representation of the principles of mech-
> anics. Should we go on to say that every cyclist has an intuitive or tacit knowledge of
> the principles of mechanics? This does not seem an illuminating way of talking
> about cyclists; and Chomsky's remarks about "tacit competence" do not seem to
> provide an illuminating way of talking about speakers of a language (Harman
> 1967 : 81).

The knowledge of the language, i.e. linguistic intuition, is reflected in the
speaker's judgements about grammaticality. These judgements, according to
Harman, reflect the knowledge of the output of the internalized grammar
rather than the knowledge of what Chomsky calls competence.[11]

From a different point of view Chomsky's assumptions about grammar
are criticized by Quine (1970) in his article "Methodological reflections on
current linguistic theory". Quine distinguishes behavior fitting some rules
from the behavior guided by rules and argues that for Chomsky speech is a
kind of rule-guided behavior, i.e., speakers know the rules and it is possible
for them to state these rules. The goal of the linguist is not to find the rules
which the behavior fits, but rather the rules that are implicitly present in the
minds of the native speakers. Quine (1970 : 387) finds rule-governed behavior
not as controversial as the following feature of the theory:

> ... it imputes to the natives an unconscious preference for one system over another,
> equally unconscious, which is extentionally equivalent to it.

Quine's concern here is a methodological one: how can a linguist tell that what
he proposes as deep structure is in accordance with the native's analysis and

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[11] Chomsky answers Harman in *Language and mind* (1972). The basic point that he
makes about the "bicycle rider parallel" is that, unlike bicycle riding, language is not
a skill or habit.

not an extentional equivalent? Because of inexplicit criteria in linguistics there is no way of deciding it. Quine suggests an alternative solution: of two extentionally equivalent grammars the one that is simpler and more convenient is to be chosen. Such a procedure is obviously against Chomsky's insistence on the psychological relevance of the results of linguistic investigations.

For Chomsky the grammar constructed by linguists depicts the grammar internalized in the native speaker. According to him, linguistic grammar is the same as mental grammar. Deep structures and intermediate structures are expected to have an existence on the basis of the principle of the iso-morphism of the model with the thing. If the output of the model corresponds to the observed phenomena and predicts the yet unobserved phenomena cor-rectly, then the assumption is made that the various parts of the model cor-respond to some sort of reality within the phenomena which are analyzed (Starosta 1969 : 107). Thus, the linguist's grammar and the mental grammar differ only representationally — the first is an axiomatization of the latter one. There are, however, strong tendencies among psycholinguists to distin-guish these two grammars.

According to Watt (1970) mental grammar is not a linguistic grammar but rather abstract performative grammar. His hypothesis is based on the fact already mentioned in this paper that there are many discrepancies between performative complexities and complexities of the grammar postulated by linguists. The experimental analyses of speech perception prove that many sentences which involve many derivational steps are simpler to perceive than those which are simpler from the linguists' point of view. For instance, sentences 29 and 30 are easier to perceive than 31 and 32[12]:

29. *The tired soldier fired the shot.*
30. *Mary grows the flowers.*
31. *The soldier, which soldier was tired, fired the shot.*
32. *Mary causes the flowers to grow.*

It was also proven that sentences of greater performative simplicity are learned earlier by children and that generalizations that children make about language are of a different kind that those made by adults and those postulated by linguists. Truncated passives, for instance, are included by children with the class of simple predicate-adjective sentences rather than with passives. Watt (1970 : 187) comes to the following conclusions:

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[12] Watt seems to repeat the old mistake of confusing TG with performance model. Apart from that, the easier perception of sentences 29 and 30 is caused by the fact that they are sentences which people hear and use; whereas, 31 and 32 are sentences which they have never heard or produced. In languages in which adjectives function as modifiers only in relative clauses and in languages in which causatives are expressed in a periphrastic way, as in 32, 31 and 32 are easier to comprehend.

...The chief difference between CG (competence grammar) and APG (abstract performative grammar) boils down to this: the CG puts a premium on overall economy and so makes all significant generalizations; and APG puts a premium on economy of derivation of individual sentential paradigms and so balks at incorpora-ting some of these generalizations.

Important as Watt's remarks are for psycholinguistics, his criticism of the identification of Linguistic Grammar with Mental Grammar is valid only if Mental Grammar is understood in the narrower sense, as a collection of rules corresponding to the speaker's sequence of mental processes occur-ring during the individual acts of speech production. The mental reality which linguists hope to discover is of a different kind; it involves cognitive processes relating human sensual contact with the outside world and the units of language. There is, however, no doubt that many features of language structure are determined by the use of language in speech acts. The actual use of language depends on such factors as memory span and the general organization of human memory. As Bever (1970 : 280) points out:

Linguistic structure is itself partially determined by the learning and behavioral processes that are involved in acquiring and implementing that structure.

There is one more problem with the grammar understood as the account of the native speaker's competence. If grammar is the description of the com-petence, then the set of sentences that it generates must be the same as the set of sentences in language. According to Fillmore (1970), the requirement that grammar be a complete description of the competence is incompatible with certain features of natural language[13]. He exemplifies this statement with the case of tag-questions. The general rule for tags fails to cover all cases of their use. For instance, a sentence such as 33 may have either *a*, *b*, or *c* as tags, because native speakers use any one of them:

33. *Somebody's out there,*
    a. *isn't there?*
    b. *isn't he?*
    c. *aren't they?*

None of these tags is consistent with the general rule of tag formation. Similarly, the subject-verb agreement cannot always be determined by a general rule:

34. *Either he or I* $\begin{Bmatrix} am \\ is \end{Bmatrix}$ *always on duty.*

Fillmore proposes that grammar should be incomplete just in such a way as to allow an accounting for cases like 33 and 34.

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[13] Cf. Fillmore (1970: 16), especially the following statement:

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.

3. Universals.

The issue concerning the status of universals in linguistic theory is of special significance for CA. Problems connected with universals can be divided into four groups of questions:

1. What are the universals? How deep should the linguist look for them? Can all common features of languages be called universals?

2. In what way should the theory of restricted in order not to allow the establishment of common features of languages by means of a mere manipulation with rules and symbols?

3. What is the significance of finding linguistic universals? Should not they be used only within the linguistic theory in order to distinguish universal grammar form individual grammars? How relevant (if at all) are universals for the solution of problems of language acquisition and general cognitive processes? Can linguists go so far as to postulate innate ideas based on linguistic universals?

4. To what extent do the universals proposed by linguists reflect the universal constraints and mechanisms of language perception and learning? Can "real" linguistic universals be distinguished from cognitive ones, and how?

The complexity of the problem of universals has been appreciated only recently. In 1965 the task seemed to be much simpler. Universals were categorized into two qualitatively different groups — substantial and formal universals — and it was assumed that both types could be found in all three components of grammar. Universal phonetics, based on a fixed set of distinctive phonetic features, had the best results in this respect. The views on universal syntax and universal semantics have, however, changed considerably with the change of model from generative syntax to generative semantics and with the general development of knowledge about the complicated working of natural language. It is now obvious that words cannot be adequately analyzed in terms of such features as *animate, action, object*, etc., as it was assumed in the early approach to semantics. Nor can the semantic rules of language be analyzed independently of the syntactic rules. Linguistic theory must, for instance, provide a means for relating as synonymous two expressions such as 35 and 36:

35. *a good knife*

36. *a knife which cuts well*

It means that knife must be characterized, apart from other features, in terms of function and evaluation measure[14]. Traditional componential analysis of lexical items turned out to be insufficient for linguistic purposes. One of the objections to componential analysis is that the process of decomposition of meaning can be carried on almost without finding any stopping place.

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[14] Cf. Chomsky (1972), in section 'The formal nature of language'.

According to Fillmore (1971 a : 274), instead of the question "What is the meaning of this form" linguists should ask "What do the speakers need to know in order to use this form appropriately and to understand other people?" In order to answer the second question, it is necessary to analyze a word in all its contexts.

Recent investigations of linguists broadened the domain of linguistics by including within discussions such problems as topic, focus, presupposition, felicity conditions of utterances, possible lexical items, semantic primes, etc. The interest in some of these topics was dictated by an attempt to overcome Chomsky's sentence atomism by a systematic study of sentences in the context of other sentences and with reference to the speaker's beliefs and knowledge of the world. The discussion of these phenomena points also to a new direction in the search of universals.

Although the universal base hypothesis is the basic assumption underlying the study of languages, there are serious methodological problems connected with it. A strong version of this hypothesis, as proposed by Ross, Lakoff, McCawley et al., has the following form:

> In the transformational theory of grammar, the base grammar B will serve as the base component of a descriptively adequate grammar of any natural language (Peters and Richtie 1969 : 151).

According to Peters and Richtie (1969) and Peters (1970), the way in which this hypothesis is formulated allows for the discovery of many universal bases. This formulation is too general and makes it possible to arrive at two or more different transformational grammars which generate the same structural descriptions. An additional complication lies in the fact that different structural descriptions may have the same empirical consequences. For instance, Peters argues, the lexicalist vs. transformationalist controversy concerning the derived nominals cannot be solved by an appeal to the native speaker's intuitions:

> Linguistic intuitions of native English speakers can be captured equally well either way. Furthermore, nothing that is presently known about the manner in which general linguistic theory should project from simple data to grammar provides a basis for preferring one of these analyses. Thus, as it stands, transformational theory is inadequate to empirically determine what is the base component of the grammar of English (Peters 1970 : 36).

In Peters's opinion, this state of affairs is due to the weakly constrained nature of transformations. Many grammatical phenomena are explained by ways of mere manipulations with transformations. He gives the example of two different ways in which the underlying order of the same language can be analyzed. Bach (1962) postulated verb in the sentence final position in the underlying structure of German sentences. The verb was moved to the second position transformationally. Ross (1970), on the other hand, argued

that SVO is the underlying order for German and that a special transformation moves the verb to the sentence final position in subordinate clauses. The problem is that there is no way of telling which analysis is better on the basis of linguistic intuitions of the speakers, because the intuitions concerning more abstract structures (if there are any such intuitions) cannot be checked directly.

Finally, along with the growing conviction that some of the linguistic universals may turn out to be cognitive universals, the theory should provide a basis for distinguishing between the Apparent Linguistic Universals and the Real Linguistic Universals [15]. McNeil proposes to execute this distinction in the following way:

> Weak Linguistic Universals have a necessary and sufficient cause in one or more universals of cognition and perception....
> Strong Linguistic Universals have a necessary cause in cognition or perception but because another purely linguistic ability also is necessary, cognition is not a sufficient cause (McNeil 1971 : 534).

According to him, this distinction is purely psychological. Linguistic theory points to the universal features of language without any consideration of the causes of these universals. The problem of the relationship between linguistic and cognitive universals has not been given much attention by linguists. One of the reasons is that too little is yet known about the universal features of languages.

4. Innate ideas

The classical doctrine of innate ideas, i.e., the theory that the acquisition of knowledge and language is based on the a priori species-specific principles, found a contemporary spokesman in Chomsky. Unlike any other linguist, Chomsky, with great persistency, refers to this theory in all his writings. According to him, the issue of innate ideas has a great bearing upon the direction of linguistic and psychological investigations. Chomsky's basic premises for postulating innate ideas are the following four:

1. The distinctive feature of human language is its creativity. This specific feature is lacking in animals which possess some systems of communication. The evidence from the studies of animal communication points to the fact that human language could not develop from more primitive systems of communication. Features such as emotive, propositional, and purposive, found in both human and animal languages, are not the distinctive features of language as such; they can characterize other activities such as, for instance, walking (Chomsky 1967).

2. Language acquisition takes place at the age when a child is hardly capable of anything else.

3. The data available for the child are only a small sample of the material that the child masters.

4. Language acquisition is independent of intelligence of the individual and of motivation.

Chomsky's conclusion is that each human mind is provided with an initial structure that enables a child to develop a highly abstract system of grammar from the data of senses. To discover this innate structure is the task of a linguist. Thus the main problem for linguistics is to develop a hypothesis about the initial structure that is sufficiently rich to account for the acquisition of language and which is not inconsistent with the diversity of existing languages. The basic assumption of this theory is that general features of language structure reflect not so much man's experience as the general character of his capacity to acquire knowledge. Thus, innate ideas or universals are conceived of as a highly restrictive schema which determines what counts as a linguistic experience. This initial schema is supposed to restrict a human language in a similar way as the phonological systems are determined by the choice of phonetic properties.

Chomsky maintains that postulating the existence of innate ideas is the best way of explaining a child's language acquisition. Two older psychological models failed to account for the ability to produce and understand novel sentences. One theory held that language learning consists primarily of the imitation of the utterances of elders. According to the second theory, language acquisition is best explained by the principle of reinforcement combined with imitation. Children emit utterances spontaneously, and then they are selectively corrected and reinforced by their parents. Neither theory explains the creative aspect of the human language.

In Chomsky's theory of language acquisition a child constructs a grammar of his language on the basis of primary data. As a precondition for this task a child must possess:

1. a linguistic theory that specifies the form of the grammar of a possible human language,
2. a strategy for selecting a grammar that is compatible with the primary linguistic data.

According to Chomsky, only "innate ideas" can explain the fact that a child prefers one specific hypothesis about grammar over other hypotheses also compatible with the data available to him [16].

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[15] Cf. Bever (1970 : 351) who states:

There are many instances in which the "grammatical" structure of adult linguistic intuitions about potential sentences is influenced by mechanism of language perception and learning. The isolation of such cases suggests that there are universal constraints on the form of grammars which are not inherent to the statement of universal grammar itself, but rather the way in which grammar is learned and the use to which it is put.

[16] Cf. Chomsky (1962, 1965, 1972). In *Language and mind* Chomsky mentions Peirce's ideas about the acquisition of scientific knowledge which are similar to his own. According to Peirce, the fact that in early science correct hypotheses were formed even on the basis of highly inadequate data points to the natural, innate ability of the human

If the theory of innate ideas is accepted, two questions will have to be answered:

1. What is the character of the stimulation that sets the innate mechanism into operation?
2. How did the human mind come to acquire this cognitive structure that is attributed to it?

These problems, however, are beyond the scope of linguistics.

Acquisition of language is a relevant part of the more general problem of the acquisition of knowledge. By postulating the innate mechanism which determines some cognitive processes Chomsky and other linguists following his ideas take a definite rationalistic position in the old empiricism versus rationalism controversy. According to the empiricist view, all that has to be attributed to the human mind in order to account for the acquisition of knowledge on the basis of primary data are some data processing mechanisms and inductive principles. Acquisition of language consists, then, in inferring the rules of grammar from the initially analyzed primary linguistic data.

The rationalist position is that apart from the peripheral processing mechanisms there are innate principles which determine the form of the acquired knowledge. This idea was developed by the thinkers to whom Chomsky constantly refers — Descartes, Port-Royal logicians, Leibnitz (his famous dictum, that learning is drawing out what is innate in the mind under specific conditions), and Humboldt (whose idea about language acquisition was that one cannot really teach language but only present the conditions under which it develops in its own way)[27].

mind to construct correct theories. Peirce regarded inductive processes as marginal to the acquisition of knowledge.

There is also a close connection between Chomsky's theory of innate ideas and the views on human perception of the world of the Gestalt Psychology. Sense data do not determine our perception of objects. The whole picture of the world in the human mind is determined by some kinds of cognitive acts characteristic of the functioning of the human mind. The relationship between what humans perceive and what they have as given on the basis of sense impressions is highly arbitrary.

[27] The fact of Chomsky's frequent referring to these philosophers does not mean that his and their views on language are similar in each respect. He discusses only those of their ideas which are in agreement with his own views and often disregards their other views. The most evident case is that of Humboldt. Humboldt is not only known for his views on language learning and "innere Sprachform", but also of his relativistic views in the controversy about the relation of language and thought. Together with Herder, Sapir, and Whorf, he is on the opposite side to Chomsky's position in this argument. His view that different Weltanschauung of different peoples is due to extreme differences in the "internal structure" of their respective languages is in apparent conflict with Chomsky's views about universals. A direct answer to the claims of the Sapir-Whorf hypothesis from the position of generative grammar is given in Lenneberg's "Language and cognition" (1971). Referring to empirical research connected with this problem, Lenneberg states that naming is a consequence of categorization rather than its cause. His final

Chomsky strongly opposes any empiricist account of the acquisition of knowledge. He criticizes at length Quine's views about language learning, although the latter introduces an a priori prelinguistic "quality space" principle. Even with this principle, argues Chomsky, Quine is incapable of explaining the generative property of grammar[18]. Chomsky's severe criticism of the behavioristic school is well known; however, his position in relation to the neo-behavioristic account of language learning is not known (at least not to me). For instance, Osgood's representational mediation theory includes an assumption about some innately given human cognitive abilities such as gestalt-like tendencies in perception or the principle of hierarchy in the organization of behavior. Osgood's argument proceeds along the line that, although principles like these mentioned above are innate and universal and are reflected in human languages, it does not mean that they are linguistic universals. It means, according to him, that they are universal cognitive features of men (Osgood 1971).

Both rationalists and empiricists might agree that some "innate capacity" has to be invoked in order to explain the mastery of language on the basis of highly insufficient data. The question is whether the mechanisms of segmentation, classification, and induction associated with the empiricist view are adequate for this task. Chomsky's answer is "no". His position has also been criticized. First of all, Harman states that Chomsky offers no real criticism of empiricism because whether the empiricist view is to be rejected as incompatible with the generative theory of language depends on how the principle of induction is defined.

> ... empiricism must be either specified so narrowly that it may be ruled out at the start without appeal to transformational grammar, or defined so loosely, in which case it turns out to be compatible with transformational grammar (Harman 1968 : 425).

> ... one cannot support rationalism by showing that only languages with certain types of grammar (e.g. transformational grammar) are learnable, since an empiricist could reply that this shows only that the principles of induction used (which must be biased in favor of some hypothesis) are biased in favor of the designed types (Harman 1967 : 86).

Apart from Harman, the innate ideas hypothesis was criticized by Putnam (1967), Hiż (1967) and Goodman (1967). The main points to which their arguments can be reduced are the following two:

1. There is nothing surprising in the fact that languages have certain

conclusion is that: "... the cognitive processes studied so far are largely independent from peculiarities of any natural language and, in fact, that cognition can develop to a certain extent, even in the absence of knowledge of any language" (Lenneberg 1971 : 553).

[18] For Quine's views, cf. Quine (1960). For the controversy between Quine and Chomsky, Chomsky (1969) and Quine (1969).

properties in common. The explanation of this fact does not require an appeal to innate ideas. The principles of universal grammar might, for instance, indicate only to common historical origin of languages (Hiż) 1967[19]. What is innate are only some learning strategies which enable both the acquisition of language and solving of mathematical problems (Putnam). The relative easiness of the first language learning can be explained if we take under consideration the fact that language is not the first symbolic system that the child acquires (Goodman 1952).

2. The hypothesis cannot be supported by empirical evidence, because it is too vaguely stated. Even if it were more exact, it could be supported only by indirect evidence. Goodman concludes his article with the observation that 'rather than facts crying for the theory, the theory is crying for the facts' (Goodman 1967 : 26). The empiricist hypothesis has hardly more empirical support. The issue requires more investigation on both sides.

VI. THE GENERATIVE SEMANTICS APPROACH TO LANGUAGE

It is generally agreed among linguists working within the classical theory as presented by Chomsky in 1965 that it is incorrect. The weaker claim is that the theory of 1965 is inadequate and has to be supplemented in various ways. Lakoff's theory of exceptions (1970 a), Ross's (1968) and Pelmutter's (1968) output conditions, Postal's (1971) cross-over principle, and Chomsky's (1971) surface structure interpretation rules are all attempts to improve and patch up the *Aspects* theory. Apart from inadequacies, many inconsistencies of this model have been pointed out. For instance, Weinreich (1966) observed that Chomsky's model contained a duplication in having a dictionary in the semantic component and a separate lexicon in the syntactic component. Thus, selectional features such as *human, animate*, etc., whose task is to block semantically deviant sentences, are repeated in both semantic and syntactic components.

The abandonment of Chomsky's model was initially caused by criticism of his deep structure. In the *Aspects* framework this level of linguistic analysis corresponded to the output of the base rules. In deep structure basic grammatical relations and selectional restrictions were stated and the lexical items already inserted. Structures meeting these conditions were viewed as the input to both the transformational component and the semantic interpretive component. The main objections to the so defined notion of deep structure raised

by such linguists as Fillmore, Lakoff, McCawley, and others, who came to be known as generative semanticians, can be summarized as follows:

1. The grammatical relations such as subject-of and object-of are not deep structure relations. This observation was pointed out first by Fillmore (1966 : : 21) who stated that:

> ...subject or object are not to be found among the syntactic functions to which semantic rules must be sensitive.

2. There is no reason why selectional restrictions should be treated as syntactic while they are, in fact, of a purely semantic nature. This argument is mainly due to McCawley (1968 a).

3. The co-occurrence selection occurs at a higher level of abstraction than Chomsky's deep structure. The first systematic attempt to prove this observation was Lakoff's analysis of instrumental adverbs. He gave a number of syntactic arguments for deriving two sentences such as 37 and 38 from one common underlying structure.

37. *John sliced salami with a knife.*
38. *John used a knife to slice salami.*

Lakoff showed that the instrumental adverb *with a knife* and the verb *use a knife* have the same selectional restrictions. Yet, sentences 37 and 38 would have been assigned two totally different deep structures in Chomsky's model.

4. Chomsky's assumption that lexical insertion was to be prior to every non-lexical transformation could not be kept because the derivation of some sentences would not be possible. For instance, items like *former* and *latter* have to be inserted relatively late, because they depend on the order of elements in the surface structure. In certain cases the possibility of performing certain transformations depends on the presence of specific morphemes, not just on their meanings, e.g., *for* is deleted after *want* but not after *desire* (McCawley 1968 a : 72):

39. *I want for you to win the prize.*
40. *I desire you to win the prize.*

The conclusion based on observations 1 - 4 and some further investigations of the matter was that in language semantic and syntactic phenomena cannot be kept apart and that a deep structure needed for the analysis of language is much deeper than Chomsky's deep structure. In the new approach the semantic representation of the sentence is considered to be its deep structure. This thesis has the following consequences for the construction of grammar:

1. The base component of the grammar generates semantic representations directly. The base rules function as node admissibility conditions (local and global), i.e., they specify which structures are the possible semantic structures of a human language.

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[19] Such a hypothesis, as Chomsky pointed out when discussing the views of Putnam Goodman and Hiż, has no explanatory force (cf. Chomsky 1972 : 189). TG does not reject the claims that languages might have developed from one common language. There still remains to be explained why should a human language have features it has and not others.

2. The semantic representations are labeled trees rather than sets of markers. The elements occurring as terminal nodes of these trees are of two types: predicates (nouns, verbs, adjectives, prepositions) and indices.

3. The only types of rules needed for the derivation of surface structures from their corresponding semantic representations are transformations (pre- and post-lexical) and output constraints specifying what is a possible surface structure of a given language[20].

4. In the new model there are no projections rules. The former deep structure plays no role in this theory.

A semantic description of natural language presupposes the existence of some other — simpler language in which this description is to be carried out. Generative semanticians have decided that the language of logic can be used for that purpose. Logical formulae are supposed to present clearly and explicitly semantic relations which are present in the sentence but which may be unclearly and unsystematically expressed in the surface form. It is a well known fact that ordinary language in many cases disguises logical structure. As Wittgenstein pointed out in *Philosophical investigations*, most heterogeneous forms are forced into the same schema, such as *This paper is boring, The weather is fine, I am lazy.*

On the other hand, although the use of logical language guarantees a clear and unambiguous representation of the meanings of sentences, it is also obvious that, being created for the needs of mathematics, it may prove an insufficient tool for the analysis of natural languages. Natural language is not constructed according to pure principles of logic. As Suszko (1970 : 51 ff) observed, the structure of everyday language follows the pragmatical role of language (comprising the psychological, biological, and social phenomena) to an even larger extent than its referential role.

What the generative semanticians postulate is the use of the so-called natural logic. The logical form of a sentence is to be determined not only by the requirements of logic but also by linguistic considerations. According to Lakoff (1970 b), natural logic should possess these features:

1. It ought to enable better understanding of the relationship between grammar and reasoning.

2. Significant linguistic generalizations should be stated in this logic.

3. All concepts expressible in natural language ought to be expressible in natural logic.

4. Natural logic ought to be capable of accounting for all inferences made in natural language.

5. The sentential formulae of natural logic ought to consist of elements of an empirically determined set of predicates.

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[20] For a more detailed discussion of the structure of grammar in the generative model, cf. McCawley (1972).

In natural logic, the operators and atomic predicates would not be chosen from an arbitrary vocabulary, but would be limited to those which could occur in the logical forms of sentences of natural languages. That is, they would be limited in part on empirical linguistic grounds (Lakoff 1970 b : 198).

The final goal of linguistics, according to the generative semantics view, is to find a simple natural logic for natural language in general. This goal is to be achieved by finding a limited number of elementary semantic units and the rules of their combinations into lexical items and entities of higher order — phrases, clauses, etc.

Generative semanticians claim that most of the lexical items of natural language are decomposable into more primitive concepts. For instance the verbs *kill, convince, persuade, lengthen* can be represented by means of more elementary predicates in the following way:

kill   = CAUSE BECOME NOT ALIVE
convince = CAUSE COME TO BELIEVE
persuade = CAUSE COME ABOUT INTEND
lengthen = CAUSE BECOME LONGER

In accordance with this, an approximation to the semantic representation of a sentence type 41:

41. *X persuaded y to hit z*
would be something like structure *a*:

a.
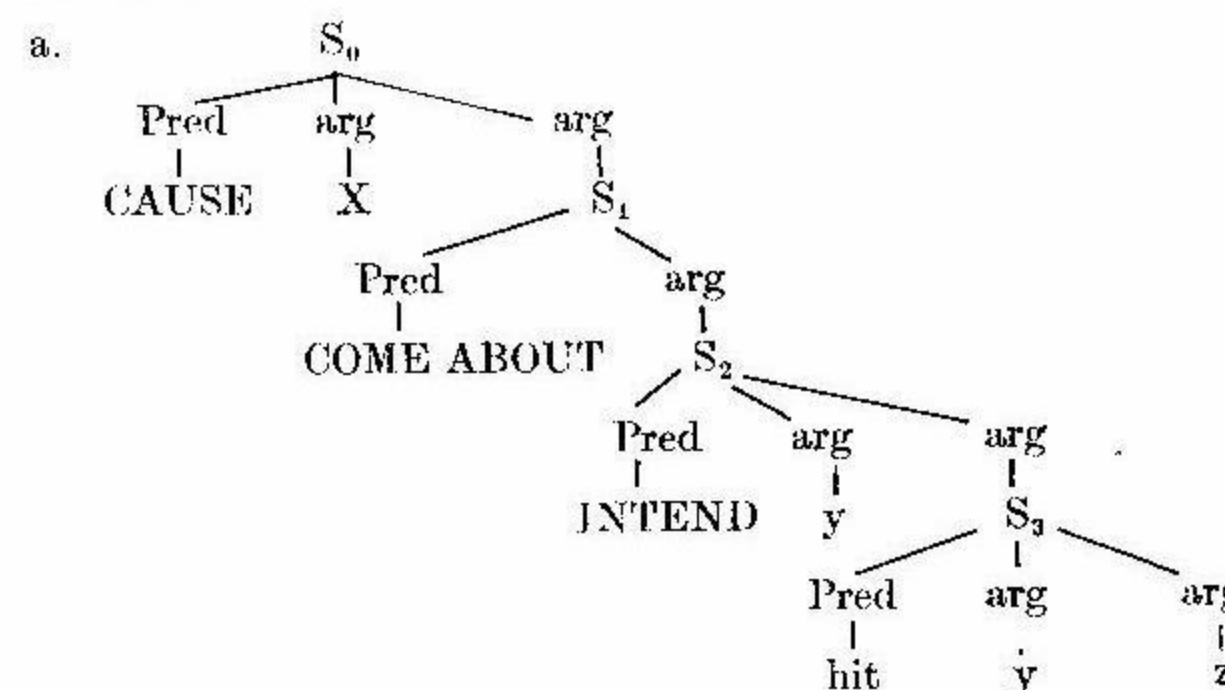
The elementary predicates of this structure (those in capital letters) are combined into one unit by means of predicate lifting transformation applied to S_2 and S_1. This transformation has the effect of adjoining a predicate to the next higher predicate. The resulting structure is shown as configuration *b*:

b.

CAUSE   COME ABOUT   INTEND

Only now can the lexical insertion transformation replace this subpart of the tree with a lexical item *persuade*. The other transformations necessary for deriving sentence type 41 from structure *a* are Equi-NP-Deletion and Subject-Raising; both percede the Predicate-Lifting.

According to Lakoff (1970 b, esp. 233), the recurring sentential operators such as CAUSE, SAY, BECOME etc., ought to function as atomic predicates in natural logic. These predicates do not vary from language to language and their hierarchical relations are also constant for all languages. Lakoff suggests that the hierarchy of atomic predicates which take sentential complements by represented by meaning postulates of the following form:

$$A (S_1) \supset B (S_1)$$

For instance, the relation between CERTAIN and POSSIBLE expressed in this way is:

$$CERTAIN (S_1) \supset POSSIBLE (S_1)$$

but not:

$$*POSSIBLE (S_1) \supset CERTAIN (S_1)$$

The primary method of arriving at basic predicates forming semantic representation of sentences is based on paraphrases. The relationship between two sentences, one being the paraphrase of the other, is such that while the first one consists of fewer words, the second one is supposed to express the same meaning by means of more but semantically simpler words. Serious objections have been raised as to the synonymity of such pairs of sentences. Most of these objections, however, can be disregarded, because they refer to the notion of synonymity rather than directly to the method of decomposition employed by generative semanticians. First of all, in view of the fact that no satisfactory definition of synonymity has been worked out either by philosophers or by linguists, and in view of the fact that if there is a good definition like that of Goodman (1952), then no two expressions of the same language turn out to be synonymous, it is better to accept the solution offered by Goodman and speak about a high degree of "likeness" of meaning rather than any absolute synonymity (Goodman 1952 : 71).

It became quite obvious recently that there is more to the analysis of lexical items than merely to decompose them by means of paraphrase. All kinds of contexts in which a given word or phrase appear have to be taken under consideration. As Shopen (1972) points out, for the purposes of linguistic analysis establishing the logical equivalence of two sentences is not sufficient. Thus, although two expressions such as *bachelor* and *a man who has never been married* mean the same, i.e., if the sentence with one of them is true, then the same sentence with the other is also true, yet they are not interchangeable in all contexts. For instance, only 42, and not 43, can appear in context 44:

42. *John has never been married.*
43. *John is a bachelor.*
44. — *because he cannot stand the ceremony.*

43, in spite of its identical meaning with 42, cannot be accepted in the context of 44, because they differ as to the entailment. The expression *has never married* means that someone has not undergone the ceremony of marriage, and hence, *the ceremony* with anaphoric *the* is correct for 42. *Bachelor*, on the other hand, only entails that a person to whom this word refers has not undergone this ceremony. Facts like this have to be accounted for in semantic representations.

A different example of contextual considerations in establishing semantic representations was provided by McCawley (1972:51). He gives a justification for treating *look for* as composed of two predicates: TRY and FIND. The TRY component of *look for* accounts for the fact that sentence 45 can have both a referential and a non-referential interpretation:

45. *Ernest is looking for a lion.*

Since *try to find* makes no commitment as to the existence of object of find, sentence 46 can be used by a person who does not believe that there are such things as unicorns:

46. *John is looking for a unicorn.*

Contextual analysis, as opposed to the simple decomposition of lexical items, brings into prominence not just any semantic components of a given item, but those which are relevant for the explanation of grammatical phenomena. Adverbs, for instance, have been found in numerous cases to modify a piece of the meaning of a given word, thus pointing to a specific borderline in the total meaning of the word. To illustrate this point we may consider sentence 47 discussed by McCawley (1972 : 73).

47. *I lent Harry my bicycle until tomorrow.*

Usually *until tomorrow* and the past tense of the verb are incompatible in the same sentence:

48. **I stayed in my room until tomorrow.*

The grammaticality of 47 can be explained only if we accept the fact that *until tomorrow* modifies only a part of the meaning of *lend*, namely that part which can be paraphrased as: "Harry possesses my bicycle" [21].

It is a matter of principle for generative semanticians that the semantic representation of lexical items be justified on syntactic grounds. A classical example providing syntactic arguments for the semantic representation is Postal's analysis of the verb *remind* as being decomposable into *strike to be similar* (Postal 1971). This article was an important contribution to the discussion about the choice between standard theory and generative seman-

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[21] As an approximation to the semantic structure of 47 McCawley (1972 : 73) proposes (diagram, p. 40):

tics. Postal proves that standard theory, with its assumption that lexical items which occur in the surface structure are already present in the deep structure, cannot provide a proper analysis of *remind*. In order to account for a number of syntactic phenomena which occur in sentences with the verb *remind*, a deeper level of analysis must be postulated. This level corresponds to the semantic structure of "remind sentences". One of the conclusions that Postal (1971 : 225) draws from his analysis, which is relevant for the generative syntax versus generative semantics controversy, is the following statement:

> There is thus ample basis for the claim that it is an empirical fact that as one follows transformational derivation in reverse, one moves in a direction of semantic relevance, not in some arbitrary direction. This, I emphasize again, is an empirical fact, and one which does not follow as such from the definitions of transformation and transformational derivation.

The claim of generative semanticians that the semantic structure of a sentence can be presented as its logical form, i.e. in terms of predicates, arguments, quantifiers, needs justification with respect to two points which have not been discussed here yet:

1. How do we know that rules relating logical forms to surface structures are grammatical rules (transformations).
2. Although it is known that the generative semantics theory can explain a wider range of language phenomena than the standard theory, how can it be shown that the new analysis is better than the old one with respect to these phenomena which seemed to be successfully accounted for in the standard theory?

An explicit answer to the first question was given by Lakoff (1970 b) in the article "Linguistics and natural logic". He discussed there two grammatical phenomena — adverb preposing and quantifier lowering. On the basis of his analysis he stated that rules relating logical froms to surface structures overlap with grammatical rules, because they generate grammatical sentences and "filter out the ungrammatical ones".
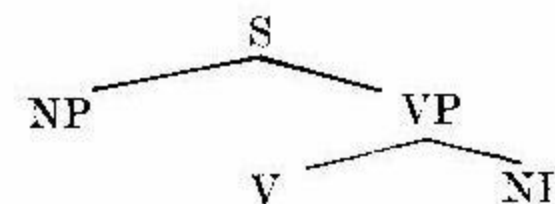
Note 21 contd
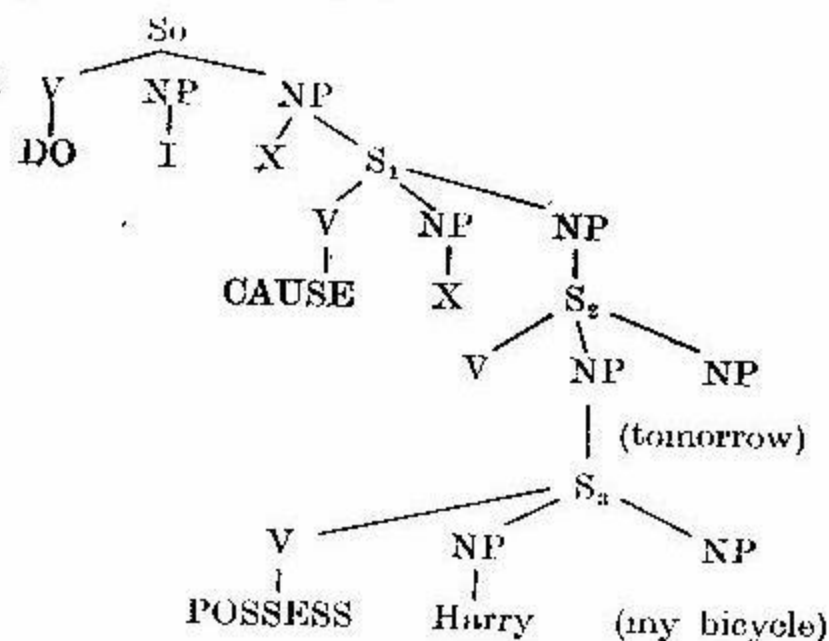
The second problem is discussed in some detail by Harman (1970) in the article "Deep structure as logical form". He presents arguments for preferring a deep structure of the form *a* (predicate followed by arguments) over a deep structure of the form *b* (subject phrase followed by predicate phrase).
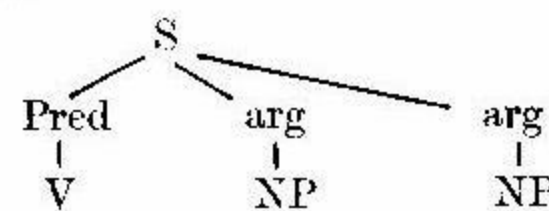

For instance, the passive transformations is much simpler in the new analysis. According to the earlier version, the passive transformation moved the subject of the sentence to the end of the verb phrase and put the object where the subject used to be. Since it was not clear why the original subject should end up inside the VP, and not outside of it, attached directly to the S node, an ad hoc solution was devised. In the revised version it was assumed that the deep structure of passive sentences contained a constituent "passive". This constituent appeared within the Verb Phrase because it was supposed to be a form of Manner Adverbial. In this version, the transformation applied only to structures with the "passive" constituent and it moved the subject NP in the place of "passive" and the object to the place of subject:
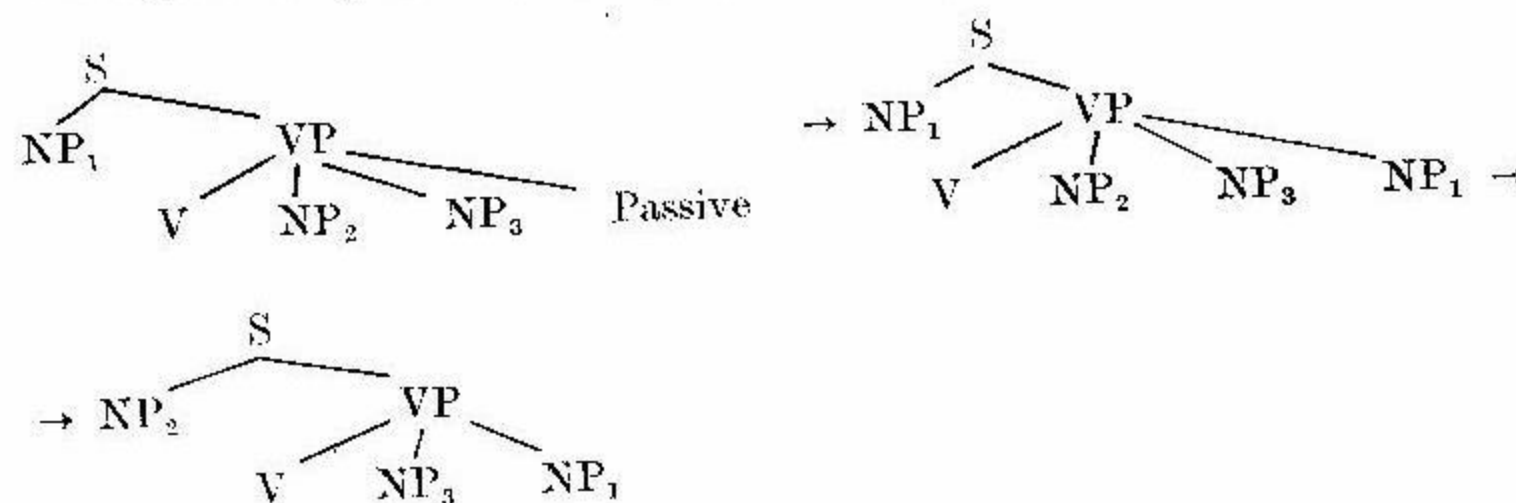
In the new analysis the passive transformation represents only one operation — moving the first argument to the end of the clause. The second operation — moving the object — follows automatically as regular subject raising (under the convention that the left-most NP is always the candidate for surface subject):
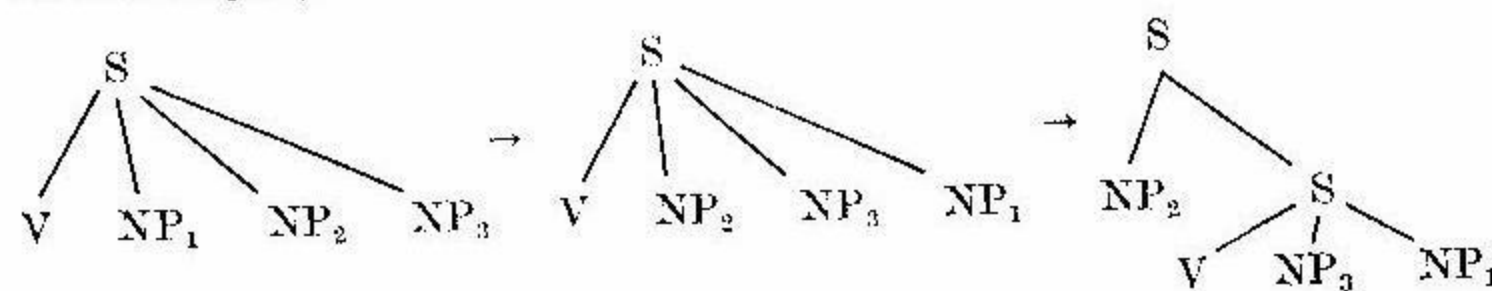
The superiority of the new analysis over the old one concerns primarily the simplicity of the theory; the new approach is simpler in the whole system of the theory. Other examples discussed by Harman which prove the superiority of logical form over the standard NP — VP form involve pronominalization, extraposition, and quantifiers.

Generative semantics not only changed the model of language and the methods of linguistic analysis, but it also expanded the domain of linguistic theory[22]. In opposition to sentence atomism of early TG, recent linguistic studies concentrate on such topics as: focus, topic, presupposition, and felicity conditions of illocutionary acts. The domain of linguistic investigations in many cases overlaps with the domain of philosophy and psychology. Since a handling of certain linguistic phenomena requires an appeal to the cognitive and behavioral processes of speakers and listeners as well as to some situational aspects of the linguistic act, not only is the distinction between competence and performance violated, but also the distinction between what is linguistic in nature and what is cognitive. As Maclay (1971 : 179 f) states in his overview of linguistic science, pretty soon the boundaries of linguistics will have to be redefined with respect to neighbor disciplines such as psycholinguistics, cognitive psychology, human communication, philosophy of language, etc. Nevertheless, whatever the consequences for linguistics, it is a good feature of any science if it can make use of the results and methods of other disciplines and also contribute to them.

We will discuss here in some detail the notion of presupposition and its treatment in generative semantics. We will try to show by taking the examples from recent linguistic literature on this subject, how the introduction of this notion affected the theory of grammar, especially its explanatory power. Any discussion of presupposition makes it clear that the distinction between the linguistic knowledge and the speaker's knowledge of the world is extremely difficult to be drawn, expecially if we take presupposition in its broader sense — as the felicity conditions which involve non-linguistic situational elements.

The basic fact about language on which recent linguistic theory relies, and which tries to make explicit, is this one: there is more to sentences than merely conveying some piece of information in terms of "who did what to whom and when". The grammatical form of the sentence shows that the sentence not only asserts something, it also conveys additional information about the speaker and listener — their mutual relationship, their knowledge of the world and beliefs and information about the particular linguistic act.

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[22] This expansion is not the result of the acceptance of the generative semantics model; however, the main contributions to these new topics have been made by generative semanticians.

These additional aspects of sentences are discussed by linguists under the terms of topic, focus and presupposition.

As to the presupposition itself, the distinction between assertion and presupposition plays an important role in the grammatical discussion of questions and negation, and in fact it was the analysis of questions and negative sentences which first drew the linguists' attention to the phenomenon of presupposition. It was observed that is was the assertion part of the sentence which could be questioned and negated, not the presupposed part. In interrogative and negative statements the presupposition remains the same as in the corresponding declarative statements. For all three sentences: 49, 50, and 51 the same presupposition *Pedro is a Norwegian* holds.

    49. *Pedro regretted being a Norwegian.*
    50. *Pedro didn't regret being a Norwegian.*
    51. *Did Pedro regret being a Norwegian?*

In fact, negation is the generally accepted test for presupposition, in accordance with Keenan's (1971 : 45) definition:

S logically presupposes S′ if S logically implies S′ and if the negation of S, S, also logically implies S.

The term presupposition applies not only to sentences. We can also speak about the presupposition of individual words. For instance, the word *bachelor* presupposes that the person to whom it refers is male, adult, human, etc. It asserts that the person has not been married. It has been proved by Fillmore (1971) that certain classes of verbs can be very economically described if the proper distinction between the asserted and the presupposed meaning is made. He analyzed verbs of judging (*accuse, blame, criticize, praise, scold,* etc.) with the use of very few semantic primes such as JUDGE, DEFENDANT, SITUATION, ADRESSEE, etc., and polarized them with respect to the different presuppositions involved. For instance, accuse and praise turn out to be semantic reversals of each other only as far as their presuppositions are concerned. Thus 52 and 53 both assert that *Harry claims that I wrote a strong letter to the company:*

    52. *Harry accused me of writing a strong letter to the company.*
    53. *Harry praised me for writing a strong letter to the company.*

but 52 has the presupposition:

    54. *Harry judges that writing a strong letter to the company is bad.*

whereas in 53 the presupposition is 55:

    55. *Harry judges that writing a strong letter to the company is good.*

There are numerous grammatical phenomena which are best explained with reference to presupposition. One such case is the influence of the surface distribution of certain elements upon the meaning of the sentence. For in-

stance, Chomsky (1972: 108) discusses the occurrence of the morpheme *even* in sentences like 56 and 57:

    56. *John is tall even for a pygmy.*

    57. *Even John is tall for a pygmy.*

The different position of *even* in these sentences changes their meaning. Actually, where *even* is to be inserted depends on the presupposition made by the speaker. If the presupposition is that pygmies are tall, sentence 56 will be used, if the presupposition is that pygmies are short, sentence 57 will be appropriate. Chomsky's point is that in order to account for the difference of meaning between 56 and 57, the theory of grammar must allow surface structure interpretation rules. The generative semantics point of view is that the total information about the meaning of the sentence, presuppositions included, must be present in the semantic representation, so that, depending on which presupposition is present in the deep structure, the rules of grammar will derive either 56 or 57. It is obvious now that any theory of grammar has to incorporate presuppositions; yet the way of dealing with them in the model with a separate interpretive semantic component is much more complex and less consistent than the generative semantics model[23].

A similar case of the influence of presupposition on the surface phenomena was observed by Kim Burt and discussed by Lakoff (1971 b). This example concerns the deletion of the future auxiliary *will*. In some sentences *will* can be deleted, whereas in others it cannot. The distinction is based on the presupposition: *will* can be deleted just in case it is presupposed that the speaker can be (relatively) sure of the event to occur (compare sentences 58 - 61):

58. I $\begin{Bmatrix} will\ get \\ get \end{Bmatrix}$ *my paycheck tomorrow.*

59. I $\begin{Bmatrix} will\ get \\ *get \end{Bmatrix}$ *a cold tomorrow.*

60. *The astronauts* $\begin{Bmatrix} will\ return \\ return \end{Bmatrix}$ *tomorrow.*

61. *The astronauts* $\begin{Bmatrix} will\ return \\ *return \end{Bmatrix}$ *safely tomorrow.*

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[23] As Morgan (1969 : 169) points out, in order to account for the ungrammaticality of sentences such as:

1.* *Since the sun is out right now, it would be time to get up.*

2.* *Since the sun were out right now, it's time to get up.*

grammar with interpretive semantic component has to either
a. specifiy the factivity of *since* and the possible surface complements of *since*, or
b. allow that 1 and 2 are grammatically well-formed and only semantically anomalous.

Lakoff (1971 b) has observed a very interesting phenomenon, namely, that the same string of words can be a grammatical sentence or an ungrammatical sentence, depending on the presupposition. In the case that he discusses, the term presupposition refers not only to the general knowledge of the world (possessed by the speaker or shared by both the speaker and the listener) but also to the common cultural background of the speaker and the listener. Thus 62, with contrastive stress as indicated:

    62. *Jóhn called Máry a virgin and then shé insulted him.*

is grammatical

only relative to the presupposition: *to call someone a virgin is an insult!*

There are cases in grammar where the insertion of a given lexical item depends wholly on the presupposition and cannot be predicted from the representation of the basic proposition. For instance, *but* replaces *and* (or whatever the counterpart of *and* in the semantic representation is) in cases when the second conjunct expresses something which is contradictory to the speaker's or listener's expectations, based on his knowledge of the world and social conventions. Thus the sentence:

    63. *It is June but it is snowing.*

asserts that: *It is June and it is snowing* and presupposes that *Snow in June is contrary to the speaker's expectations.* Under this presupposition *but* is inserted instead of *and* (Lakoff 1971 b).

Due to the incorporation of presupposition in grammar many observations about language came to be stated explicitly. It appears that numerous problems which in traditional grammar were dealt with by supplementing the basic rules with long descriptive statements about when to use a given construction, can be accounted for by representing presuppositions in the semantic structure of sentences. To such cases, among others, the always troublesome conditional sentences belong.

In spite of the fact that many linguists have recently been preoccupied with presupposition, the problem of the formal representation of presupposition has not been solved yet. Lakoff (1970 b : 209 ff) proposed that presupposition be represented as a separate proposition in the form of a tree diagram which would occur to the right of the main tree, following the sign of presuppositional relation "→". The question, however, can be asked whether the sentences forming presuppositions can be treated in exactly the same manner as the actual linguistic utterances or whether some additional notational conventions should not be devised for them. This problem is connected

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The first alternative is undesirable because the same fact is stated twice in the theory. The second possibility allows the grammar to derive 1 and 2 and leaves the rejection of these sentences to the intuitive judgements of the native speakers. In the generative semantics approach, the factivity of *since* will be specified at the deepest level as a semantic property. 1 and 2 will be rejected by grammar as involving contradictory presuppositions.

with the problem of whether presuppositions are linguistic or psychological in nature, as Osgood (1971) claims.

If we were to summarize briefly the state of current linguistic research, we would have to say that after working out the general theoretical framework within which the grammars of languages ought to be described, rather than concentrate on elaborating detailed derivation of at least the sentences belonging to the basic core of language, linguists are preoccupied with answering the question "What else will the grammar of language have to take into account?". Finding and expressing the new facts about the complexity of natural language is one of the main advantages of modern linguistics. But so far, the theory is still in the stage of vague proposals rather than actual solutions to the problems. The assumption implicit in this situation is that instead of writing specific rules for each sentence as soon as some phenomena about this sentence are discovered (as it was the practice in early TG, and then changing them when the new phenomena are discovered, it is better to wait until the whole complexity of what is to be described emerges from various preliminary investigations and only then elaborate the rules of grammar, because the probability of their being correct is much greater. As an example of the studies of the phenomena which might appear to be peripheral, but which reveal further complexity of language, we might quote Lakoff's (1970 b) observations about qualifying phrases and Sadock's (1970, 1971) discussion of *whimperatives* and *queclaratives*. By qualifying phrases Lakoff means phrases which cancel the presupposition of the sentence they qualify. For instance, in 64 the if-clause cancels the presupposition of the first part of the sentence which is *Sam was beating his wife*.

64. *Sam stopped beating his wife if he has ever beaten her at all.*
Sadock focused his attention on the divergence between the form and the expected function of certain constructions. Thus, sometimes sentences which are formally questions function as imperatives (as 65) and questions function as assertions (66)

65. *May I have a drink?*
   (=Give me a drink)
66. *Who gives a damn about Turing Machines?*
   (=Nobody gives a damn about Turing machines)

VII. IMPLICATIONS OF MODERN LINGUISTICS FOR CONTRASTIVE ANALYSIS

As we have pointed out in the first section of this article, what is compared in languages depends on how the investigator conceives of language. The general theory of language determines the methods, form, and goals of contrastive studies. With the changing theory CA ought to change, providing the new theory is of higher scientific value than the old one. It is our standpoint here

that transformational theory represents a higher degree of understanding of the phenomenon of language than the structuralist theory. It is not the question of one being wrong and the other correct, or even not a question of the new theory being an improved formulation of old theory. Since structuralists dealt with describing the surface structures of language (according to their understanding of what language is), they developed their own discovery procedures and introduced scientific terms matching their aims. And as far as the description of surface structures is concerned, their methods and terms are still retained, and there is no need of replacing them as long as they work.

The superiority of transformational thinking over the structuralists' views consists in its approach to the relationship between language and other phenomena related to language. Structuralists analyzed language as a phenomenon per se and described its units and patterns without any reference to anything outside language. The units of the system were justified within the system itself. Transformational theory not only stresses the connection between language and thought, and the deterministic relationship between human cognition and human language, but also seeks as its goal to state this relationship explicitly. The assumption of TG is that basically the cognitive and perceptional processes of humans are the same, and they are reflected in a consistent and systematic way in all languages.

If this view on language is accepted, then the main implications for CA can be summarized briefly as:

1. CA cannot limit itself to the enumeration of the differences and similarities between the subsystems of languages (such as tense system, vowel system, modification structures, etc.). Nor can it be satisfied with contrasting equivalent sentences in two languages without using a theoretical apparatus allowing the proper formulation of differences and similarities in terms of general laws.

2. CA has to be meaning-based. What is to be compared are the ways of expressing the same meaning in different languages. The differences and similarities are to be found in derivational processes leading from common semantic structures to different surface structures. The differences and similarities are expressible in terms of types of rules required for the derivation of sentences and types of constraints on these rules.

3. CA has to take as its language model one which treats semantic component as generative, i.e., one in which the derivation of the sentence starts from its semantic structure, for at least three (connected with each other) reasons:
   a. the syntax-based model, such as that of *Aspects*, as it was proved and pointed out above, cannot cope with a number of grammatical phenomena,

b. syntactic deep structure is in fact a very shallow and specific language dependent level of analysis,

c. the common syntactic base (in the meaning of Chomsky 1965) is something which would still have to be proved and, thus, could not be used as a level of reference in the comparison of languages. On the other hand, the possibility of expressing the same meaning in different languages can be reasonably safely assumed [24].

So far there are two main proposals for a semantically based model of language. One approach is that of generative semantics. It has been discussed above. The other is Chafe's proposal presented in his book *Meaning and the structure of language* (1970). The basic difference between these two approaches lies in the fact that generative semantics is sentence oriented and Chafe's grammar is word oriented. In Chafe's model the derivation of a sentence begins from a predicate which according to its features, combines with noun phrases into various types of sentences. Unlike generative semanticist Chafe tries to give concrete rules for the derivation of the basic core of language. His proposal, however, concerning the generation of semantic structures is of little value for CA, because his semantic structures provide too little semantic information and because these structures are in fact based on the syntactic principles of combining words into sentences which are found in Indo-European languages. One of the reasons for which the generative semanticists refrain from proposing rules for forming semantic representations of sentences is the fact that these rules have to operate on universal semantic primes of which too little is known so far. It is one of the goals of CA, and one of its possible contributions to the general theory of language, to provide the answer to the question of which of the semantic features and semantic principles of their combinations into words and sentences are to be chosen as universal, i.e., as being useful in the most economical description of languages.

It seems that although the comparison of any two languages can lead to interesting results, the most systematic and economical way to establish the universal features of languages would be by way of a progressive comparison of languages according to their genetic relationship — starting from the comparison of a few closely related languages and ending with the comparison

of the features of large families. This procedure would lead, by a process of elimination, from sub-universals (features common to a group of languages) to real universals (features common to all languages). The search for universals would then be viewed as a specific kind of reconstruction; but instead of proceeding back along the axis of time, the investigator would proceed higher on the axis of abstraction, from what is surface and variable to what is deep and constant. Although it is only a hypothesis that the deep similarity of languages is correlated with their genetic relationship, it is highly plausible and certainly worth investigating.

No matter whether viewed as a "theoretical" task or for strictly pedagogical purposes, the main assumptions about CA remain the same. It is not true that CA done only for the sake of facilitating the teaching and learning of foreign languages is simpler. We claim that the opposite is true. Apart from establishing realization grammars for the two given languages and making the differences and similarities between them explicit, a pedagogically oriented CA has to devise additionally a transfer grammar whose task is to relate the realization processes of one language to the realization processes of the other language. It is necessary to emphasize that if the transfer grammar is to have any explanatory power and psychological relevance, it has to be based on realization grammars, i.e. on the systematic distinction between what is common and what is different and how it is different.

By *transfer grammar* we mean an approach to the comparison of two languages which results in the rules of the following form:

In conditions λ rule α of the realization grammar of the source language is replaced by rule β of the realization grammar of the target language, where λ refers to formal conditions represented by specific configurations of the trees.

Until recently transfer grammars were usually obtained by a mechanical procedure of contrasting the surface structures of two languages under the condition of meaning equivalence or sometimes only formal equivalence. This approach underlay the language textbooks for many years. Some of the contrastive works, even after the advent of TG have been written in this fashion. For instance, the contrastive parts of *The grammatical structures of English and Spanish* (Stockwell 1965) consist of statements of the following type:

a. Element A in English is element B in Spanish,

b. Element A in English is either B or C in Spanish,

c. Element A in English does not exist in Spanish,

where A and B mean surface elements. Such a grammar meets the requirements of observational adequacy only. In the discussion of learning problems which follows these statements the authors enumerate differing structures, regardless of whatever lexical items may occur in them. Their comparison

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[24] The cultural difference reflected in different concepts expressed by lexical items which do not have their counterparts in other languages are regarded here as marginal phenomena. It is not the language in such cases which does not allow the expression of a particular concept but the unawareness of the existence of some aspects of reality which does not allow the formation of a given concept. Once the people acquire the new concept, they find ways of expressing it in their language — either by borrowing, or by inventing a new word, or by using some descriptive means. As Chafe (1970) rightly pointed out, lexical differences reveal differences not so much between languages as between people.

of sentence patters, for instance, is based on the formal, equivalence. It is a well known fact however, that often formal similarity disguises some relevant differences. If, for instance, English students of Polish know that the sentence pattern: *Subject — be — Adjective* is common to English and Polish, it does not mean that they know how to use this pattern correctly. Thus, although the translation equivalent of the English 67 is a congruent with 68 in Polish[25]:

67. *This flower is beautiful.*

68. *Ten kwiat jest piękny.*

yet for the English 69:

69. *I am comfortable here.*

(Subject — be Adjective — Locative)

there is no congruent structure like 70 in Polish:

70. **Jestem wygodny tutaj.*

The translation equivalent of 69 in Polish is 71, which follows a different sentence pattern:

71. *Jest mi tutaj wygodnie.*
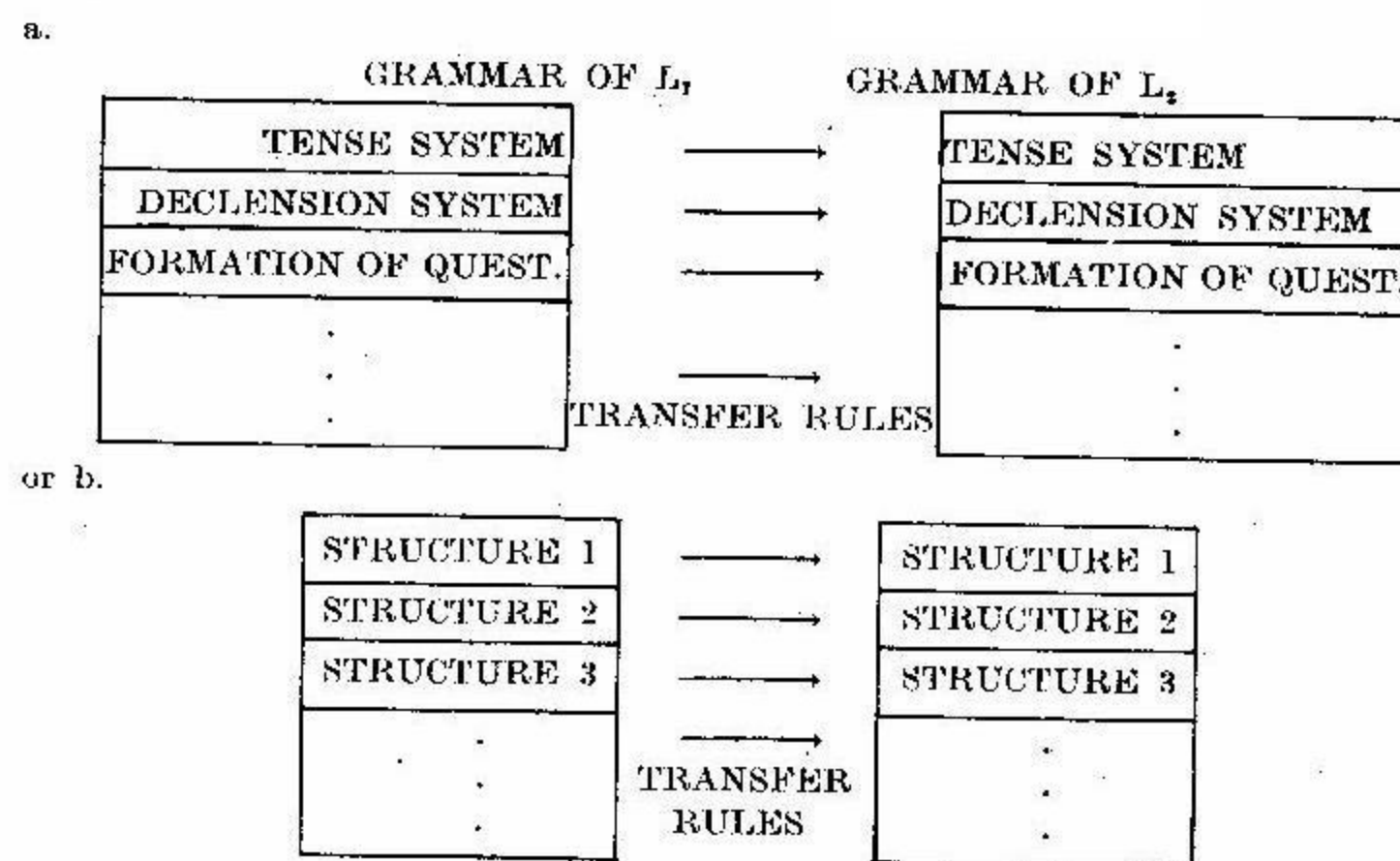
(be — Indirect Object — Locative — Adverb)

Meaning and structure of language cannot be treated separately, and this claim is one of generative semantics; there is no natural boundary between syntax and semantics. Any such boundary is artificial. Such a statement does not mean that a linguist cannot devise such a boundary for his purposes. As in other sciences, so in linguistics, it is legitimate to disregard some aspects of the investigated phenomenon in order to analyze better some of its other aspects. The point is that the ideal conditions of scientific investigations must not be taken for true conditions of reality. In order that the model of a given part of reality fitted reality, it has to incorporate all relevant aspects observed in reality. The models that do not fit are useless. After all, the goal of any science is cognition understood in such a way that the knowledge gained in science can be used by people. The language model has to be devised in such way that it fits the mental reality and thus, explains the working of language, and further, the way the human mind operates.

Getting back to our distinction between the realization and transfer grammar, *a realization grammar* of any given language is understood as a set of rules necessary to derive all grammatical sentences of this language from their corresponding semantic representation. As has been mentioned above, for pedagogical purposes realization grammars will have to be supplemented with transfer grammars.
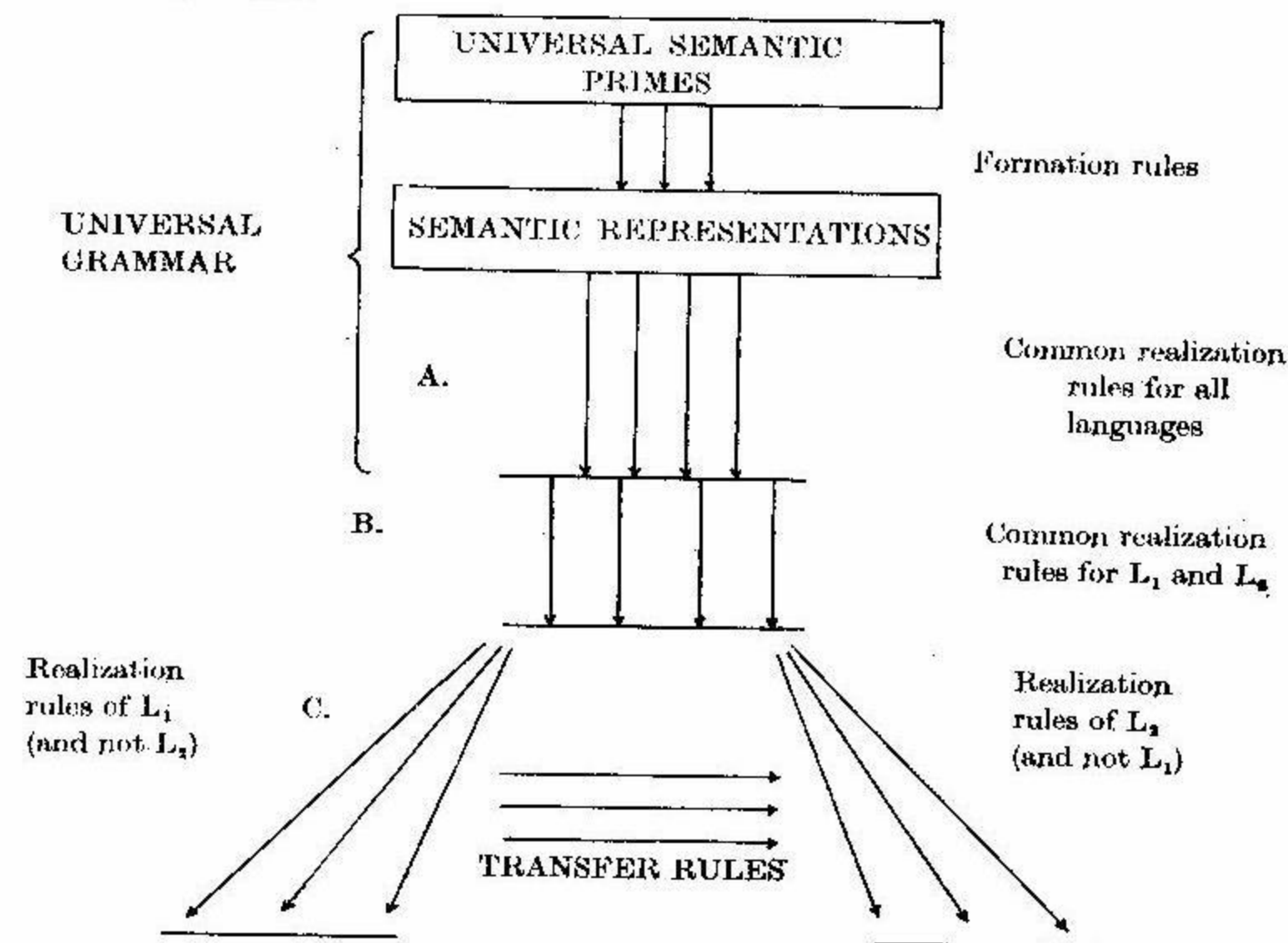
The difference between the old and the new approach to contrasting languages can be illustrated by the following diagrams:

[25] The term "congruent" is used here in the sense of Krzeszowski (1971). Congruent constructions are mutually translatable constructions of two languages and they consist of the same number of items arranged in the same order.

OLD APPROACH

a.

GRAMMAR OF L₁ → GRAMMAR OF L₂
TENSE SYSTEM → TENSE SYSTEM
DECLENSION SYSTEM → DECLENSION SYSTEM
FORMATION OF QUEST. → FORMATION OF QUEST.
TRANSFER RULES

or b.

STRUCTURE 1 → STRUCTURE 1
STRUCTURE 2 → STRUCTURE 2
STRUCTURE 3 → STRUCTURE 3
TRANSFER RULES

NEW APPROACH

UNIVERSAL GRAMMAR
UNIVERSAL SEMANTIC PRIMES
Formation rules
SEMANTIC REPRESENTATIONS
A.
Common realization rules for all languages
B.
Common realization rules for L₁ and L₂
Realization rules of L₁ (and not L₂)
C.
Realization rules of L₂ (and not L₁)
TRANSFER RULES

These diagrams present the whole situaion simplified and even incomplete. Diagram 3, with which we are now concerned, does not show how and where the Universal Phonetic Primes and the phonetic representations enter the picture. The output constraints which restrict the possible surface structures also ought to be included. Some of these constraints are universal and some are language specific. For instance, Ross's (1968) Frozen Structure constraint is valid for both English and Polish; hence, the ungrammaticality of 72 and 73, in spite of the grammaticality of 74 and 75:

72. *The coat which a girl came in who had worn was torn.
73. *Ten płaszcz, który jakaś dziewczyna weszła miała na sobie był podarty.
74. A girl came in who had worn this coat.
75. Jakaś dziewczyna weszła, która miała na sobie ten płaszcz.

This constraint states that if a relative clause has been extraposed the elements of this clause cannot be moved out of this clause (for instance by relativization as in 72 and 73).

Another constraint which forbids any NP to be moved out of the environment [Preposition —] affects Polish, as the pair of sentences 76 and 77 indicates, but it generally does not affect English:

76. Patrzyłem na te obrazy.
77. *Które obrazy patrzyłeś na?
78. I looked at these pictures.
79. Which pictures did you look at?

On the other hand the Left Branch Condition which affects English does not affect Polish. Thus in 80 what cannot be separated from colour, hence the ungrammaticality of 81, but in Polish both 82 and 83 are grammatical:

80. What colour is this?
81. *What is this colour?
82. Jaki kolor to jest?
83. Jaki to jest kolor?

Language specific constraints have to be stated in the transfer grammar somehow too.

It is important to realize that diagram 3 is not a model of the derivation of a sentence but a model of a grammar, so that in section A, for instance rules can occur which are relatively late in the process of deriving sentences, and in section C, although it is less plausible, rules which are relatively early in the process of derivation. The rules in the diagram are ordered from top to bottom, not according to their successive application but according to the criterion of their universality. These two criteria may and do sometimes overlap.

Another fact which has to be stressed is that all realization rules are transformational rules, i.e., each such rule defines the difference between two trees representing the consecutive states in the derivation of sentences (to be precise

one should say that these differences are not between trees, but between their branches or sub-branches because transformations are in fact local derivational constraints). It is thus difficult to say what form the transfer rules will have. Still too little is known about the universals and realization processes. Before we can attempt formulating transfer rules, CA has to limit itself to the task of discovering universals and sub-universals by comparing different languages.

The main problem which faces modern linguistics is that of semantic representation. Before the question of how the meanings of utterances are to be represented formally can be answered, the problem of which items these meanings consist has to be solved. The optimal choice of the universal set of semantic units with regard to the criterion of explanatory adequacy can only be obtained by means of a systematic comparison of many languages within the same theoretical framework. The so-called lexicalization processes are of primary importance here. These processes consist in the different ways primary predicates can combine into concrete lexical items in specific languages. Since, theoretically, given a set of primary predicates, these predicates can confluence in many different ways resulting in effect in lexical items which do not exist in any natural language, discovering the empirical restrictions on the possible lexical item of a human language is essentail. Solution of the problem of the possible lexical item may turn out very helpful in answering some of the questions about human perceptive abilities.

There is some evidence to support the hypothesis that lexiacl items of a given language are formed out of the primary predicates according to the syntactic rules operating in this language. For instance, McCawley (1970) claims that reflexivization is involved in the formation of suicide from to kill oneself, and Equi-NP-DEL operates in the derivation of malinger from the more basic pretend to be sick. According to McCawley (1970 : 243):

... language will only permit lexical items which correspond to syntactic constituents that would arise from well formed semantic representations through existing prelexical transformations.

Problems connected with lexicalization, even if one restricts oneself to one language, are numerous. Some of the questions which will have to be answered are the following ones:

1. How should lexical gaps (items that do not exist in a given language) be accounted for? We are interested here in those lexical items which are possible lexical items of a human language and which do not occur in a given language. A distinction has to be made between items such as, say, *to goand, formed from the constituents go and and, which probably does not exist in any language, and items that occur in some languages and do not appear in others. For instance, a lexical item corresponding to to drink from a bottle

does not occur in English or Polish, but it exists in Dehu (*gahan*). The first type of lexical gap will be dealt with in universal grammar. The other type of lexical gap, which includes also phenomena such as the nonexistence of **passer (from to pass an exam)* as opposed to the existence of *inventor (from to invent something)* will have to be accounted for by particular grammars of different languages.
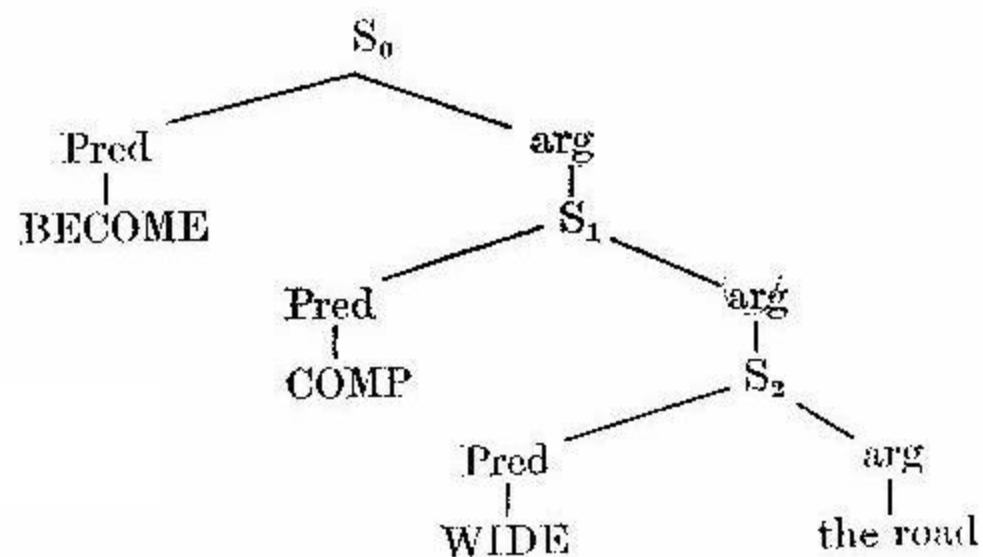
2. Until recently the hypothetical primary predicates were established on the basis of a simple paraphrase. Thus, for instance, *kill* was decomposed as *cause to become not alive* and *bachelor* as *a man who has never been married*. Logical equivalence of sentences in which these expressions could appear was regarded as the primary criterion of a paraphrase relation. It meant that two expressions had the same meaning, if one could replace the other in the same sentence without any change in the truth value of that sentence. Since, however, as was mentioned in section VI, logical equivalence turned out to be insufficient for the purposes of linguistic analysis, the semantic equivalence, in the sense of Shopen (1972), has to be established on the basis of the equivalence of two expressions in larger contexts. Let us exemplify the problems connected with establishing semantic representations with a brief discussion of inchoatives of the type:

83. *The road widened.*

The first paraphrase which comes to mind is 84:

84. *The road became wide.*

so that the first approximation to the semantic representation of 83 might be something like structure *a*:

```
                  S₀
           _____/ _____
         Pred            arg
          |               |
        BECOME           S₁
                     ____/ \____
                   Pred        arg
                    |           |
                  COMP         S₂
                           ____/ \____
                         Pred        arg
                          |           |
                        WIDE       the road
```
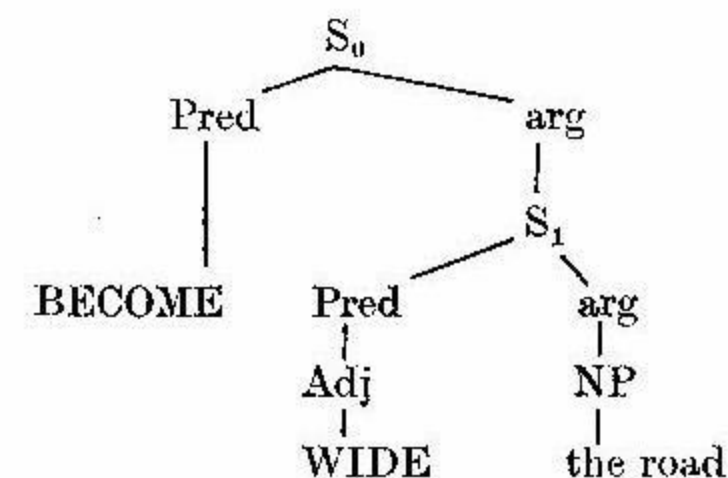
To derive sentence 83, apart from the transformation of predicate raising which puts WIDE and BECOME under the domination of the same S node (at this stage the derivation of 84 ends) and additional optional transformation is performed which merges the two predicates into one lexical item WIDEN.

This approach treats 83 and 84 as paraphrases, i.e. mutually interchangeable, but it is not correct because only in one of its meanings is 83 equivalent to 84. As Lakoff (1966) observed in the article "Some verbs of change and causation", it is necessary to distinguish between the absolute sense of WIDEN (in this sense 83 is synonymous to 84) and the comparative sense. In the comparative sense 83 is synonymous to 85:

85. *The road became wider.*

Incorporating this information into our theory, we might state that apart from the semantic representation *a*, sentence 84 may also be derived from semantic representation *b*:

```
                 S₀
          _____/ _____
        Pred            arg
         |               |
       BECOME           S₁
                   ____/ \____
                 Pred        arg
                  |           |
                 Adj         NP
                  |           |
                WIDE       the road
```

What this amounts to is that in order to express the meaning represented as structure *a*, the speaker of English may say either 83 or 84; and in order to express the meaning represented by structure *b*, he may use either 83 or 85. The difference between meaning *a* and *b* is in fact the difference in presupposition. Thus, whereas 84 presupposes that the road was not wide before, 85 does not presuppose anything about the previous width of the road. The assertion of both sentences is the same, something like structure *a*. The COMP element (comparative) under this analysis belongs to the representation of presupposition. Any theory which claims to have explanatory value has to explain the mutual relation between these three sentences (83, 84 and 85). Even if we were to accept that the pairs 83, 84 and 85, 83 are stylistic variants, the conditions for the use of one rather than the other would have to be stated in terms of different styles.

A related problem is that of the relationship between *become, get, turn, grow,* and *come about,* used interchangeably in some periphrastic inchoative constructions. Are sentences 86, 87, and 88 synonymous?

86. *The sauce became thick.*

87. *The sauce came to be thick.*

88. *The sauce got thick.*

Can it be assumed that given one semantic representation for them, the choice between *become, come to,* and *get* is random? This does not seem to be the case; at least the difference between 86 and 88 looks like a difference of style. 86 is more formal and 88 more colloquial. Notice also that not each of the above

enumerated 'inchoative auxiliaries' can co-occur with each adjective with an equal degree of acceptability:

89. ? *The sauce grew thick.*
90. ? *The sauce turned thick.*

The grammar of a given language has to take these facts into account. Languages can thus also be compared as to how many lexical items (wholly synonymous or differing only according to style) can correspond to the same semantic representation of a sentence.

3. Lexical insertion has to be correlated with the order of other transformations occurring in the derivation of a given sentence. Thus, certain transformations may be blocked by the choice of some lexical items rather than other (synonymous to them). For instance, in spite of the synonymity of 91 and 92 (one meaning of 91 is synonymous to one meaning of 92):

91. *John thickened the sauce.*
92. *John caused the sauce to thicken.*

derivations of these sentences from the same semantic structure involve different transformations.
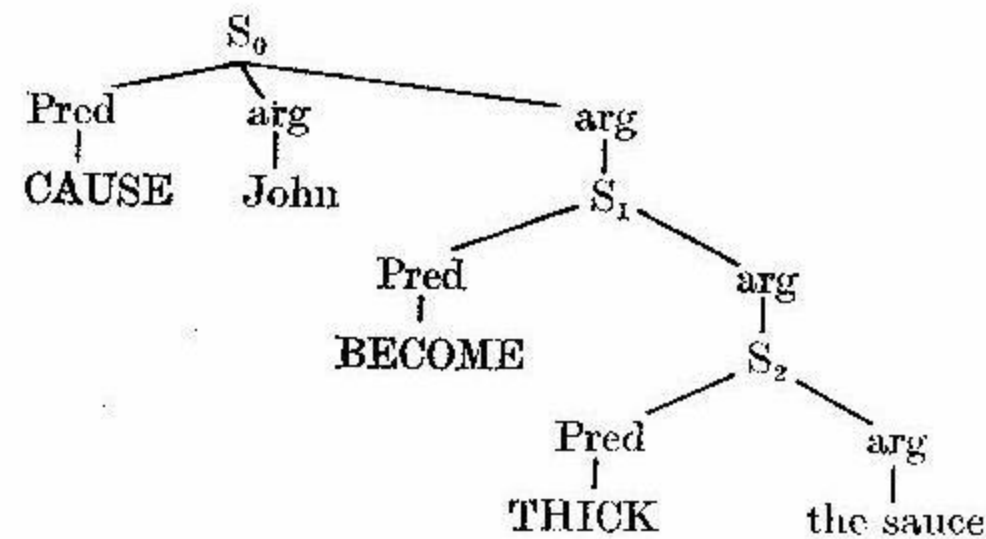
In order to derive 91, the predicate-raising applies twice, and the three predicates CAUSE, BECOME, and THICK, according to the rules of English, form one lexical item *thicken*. In the case of the derivation of 92 the lexical item *cause* is inserted first and replaces the predicate CAUSE. Predicate-raising can apply only once; BECOME and THICK conflate into *thicken*; the subject of S_2 (which is by now under the domination of S_1) is raised to S_0, and finally the appropriate complementizer — *to* — is inserted.

4. The fourth problem that we mention here is that of lexical items which are used in more than one meaning. Can these cases be explained in the theory, i.e., can the conflation of two different combinations of predicates into one surface form be viewed as resulting from some rule of grammar, or should it be viewed as accidental and, hence, unpredictable by rules of grammar? Robin Lakoff (1970 b) proposed that a single lexical item may represent

two concepts only if those concepts are in the same semantic class. Two concepts are said to be in the same "natural semantic class" if parts of their meanings are common. As a formal criterion Lakoff suggests the same form of meaning postulates and truth conditions for any two candidates for the membership of the same semantic class (1970 b: 224 - 32). According to Lakoff, the concepts POSSIBLE and PERMIT meet these requirements and it explains why their meanings can be expressed by the same lexical item *may* as in 94 and 96.

93. *It is possible that Sam will leave.*
94. *Sam may leave.*
95. *It is permitted for Sam to leave.*
96. *Sam may leave.*

Lakoff (1970b : 232) comments on this observation:

> Moreover, one might add, the more of such classes two concepts are in, the more natural it is for the same lexical item to represent those concepts. Note that this makes a rather interesting claim. Namely, that there will be no natural language in which the same lexical item will represent the two concepts of permission and certainty, or the two concepts of requirement and possibility.

It seems that in the same direction one might look for the explanation of cases when two different lexical items of one language have one translation equivalent in the second language. For instance, Polish *wiedzieć* and *znać* have one English counterpart: *to know*.

97. *Ja znam Annę* = *I know Ann.*
98. *Ja wiem wszystko o tobie.* = *I know everything about you.*

It is worth investigating whether the condition of belonging to the same semantic class explains this type of lexical correspondences between languages.

5. Another problem connected with lexicalization which will be signalled here concerns the necessity of realizing the distinction between what we shall call "lexicalization proper" and what was known in traditional grammar as morphological derivational processes. We shall speak about lexicalization proper in a case like 99:

99. CAUSE BECOME NOT ALIVE = kill
    CAUSE BELIEVE = convince

and about a morphological process in case like 100:

	Basic predicate	Inchoative	Causative
English:	WIDE	widen	widen
	STRAIGHT	straighten	straighten
Polish:	SZEROKI	poszerzyć się	poszerzyć
	PROSTY	prostować się	prostować

The difference between lexicalization exemplified in 100 and the one exemplified in 99 consists in the fact that in the first case the surface form of the resulting lexical item can be predicted and in the other it can not be predicted by the general rules of grammar. The morphological process is still productive, whereas the lexicalization proper is not. In order to agree with the linguistic intuitions of native speakers, the grammar of a language has to account for this distinction.

Language differ in this respect too — what is in one language an unanalyzable morpheme, can in the other language be formed by means of morphological derivation. Compare for instance the following pairs of verbs in English and Sonrai[26].

"Basic predicate"		Causative	
English	Sonrai	English	Sonrai
learn	cow	teach	cowndi
understand	faham	explain	fahamndi
know	bay	inform	bayndi
get lost	dercy	loose	dereyndi

6. Finally, we shall point to the phenomenon of a different distribution of meaning between words in corresponding sentences of two languages. Let us consider the way Polish and English differ in expressing existence and location. In English these two meanings are systematically expressed by the "there is" construction. The Polish translation equivalents relatively rarely contain the verb *to be* (*być*). Instead other verbs are used. Which verb is used depends on the semantic features of the noun about the referent of which the existence or location is predicated. The interesting fact is that, in spite of their different surface form, these verbs all convey the same meaning (of existence or location); often in the context NP—LOC they do not have any meaning of their own. Compare the following English sentences with their Polish counterparts:

101. *There was a swing band on the radio.*
   W radio grała orkiestra taneczna.
102. *There was a long silence.*
   Zapadła długa cisza.
103. *There was the smell of smoke and supper.*
   Pachniało dymem i kolacją.
104. *There was a stream along the road.*
   Wzdłuż drogi płynął strumień.

_____

[26] The examples are taken from Shopen and Konare (1970).

105. *There were patches on the slope.*
   Widać było plamy na skarpie.
106. *There was a wedding this week.*
   W tym tygodniu odbyło się wesele.
107. *There was a shot.*
   Padł strzał.
108. *There was a passage here.*
   Znajdował się tu pasaż.
109. *There was grass on the plain.*
110. *Równinę porastała trawa.*
110. *All over the place there were bits of paper.*
   Wszędzie leżały kawałki papieru.

The Polish counterparts of the English *there is* with *być*, although in most cases acceptable, are much less natural than with the other verbs. The above examples are taken from Hemingway's *For whom the bell tolls* and Steinbeck's *Canary row* and their Polish translations.

The transfer grammar of two languages will have to account for cases like this too, although they are, as it seems, on the borderline between linguistics proper and stylistics.

REFERENCES

Abel, T. 1953. "The operation called *verstehen*". In Feigl and Brodbeck. 1953. 677 - 87.
Ayer, A. J. 1959. *Logical positivism*. Glencoe, Ill.: The Free Press.
Bach. E. 1962. "The order of constituents in a transformational grammar of German". *Language 38*. 263 - 269.
Bach, E., Harms, R. (eds). 1968. *Universals in linguistic theory*. New York: Holt, Rinehart and Winston.
Bever, T. G. 1970. "The cognitive basis for linguistic structures". In Hayes. 1970. 279 - 352
Bierwisch, M., Heidolph, K. (eds). 1970. *Progress in linguistics*. The Hague: Mouton.
Binnick, R. 1968. "On the nature of lexical item". *Papers of the Chicago linguistic society 4*. 1 - 13.
Botha, R. 1968. *The function of the lexicon in transformational generative grammar*. The Hague: Mouton.
   — 1970. *The methodological status of grammatical argumentation*. The Hague: Mouton.
Bunge, M. 1963. *The myth of simplicity*. Englewood Cliffs, New York: Prentice-Hall, Inc.
Chafe, W. 1970. *Meaning and the structure of language*. Chicago: University of Chicago Press.
Chomsky, N. 1965. *Aspects of the theory of syntax*. Cambridge, Mass.: The MIT Press.
   — 1967. "The general properties of language". In Darley. 1967. 73 - 88.
   — 1969. "Some empirical assumptions in modern philosophy of language". In Morgenbesser et al. 1969. 260 - 285.

— 1971. "Deep structure, surface structure, and semantic representation". In Steinberg and Jacobovits. 1971. 183 - 217.

— 1972. *Language and mind*. New York: Harcourt Brace Jovanovich, Inc.

Darley, F. L. (ed). 1967. *Brain mechanisms underlying speech and language*. New York and London: Grune and Stratton.

DiPietro, R. 1971. *Language structures in contrast*. Rowley, Mass.: Newbury House Publishers.

Feigl, H., Brodbeck, M. (eds). 1953. *Readings in the philosophy of science*. New York: Appleton-Century Crofts, Inc.

Fillmore, C. 1966. "Toward a modern theory of case". In Reibel and Schane. 1969. 361 - 77.

— 1968. "The case for case". In Bach and Harms. 1968. 1 - 90.

— 1970. "On generativity" *Working papers in linguistics 6*. 1 - 19.

— 1971 a. "Verbs of judging: an exercise in semantic description". In Fillmore and Langendoen. 1971. 273 - 89.

— 1971 b. "Some problems for case grammar". *Working papers in linguistics 10*. 245 - 264.

Fillmore, C., Langendoen, D.T. (eds). 1971. *Studies in linguistic semantics*. New York: Holt, Rinehart and Winston.

Fischer, A., Murray, G. (eds). 1969. *Philosophy and science as modes of knowing*. New York: Meredith Corporation.

Fodor, I. A., Garrett, M. 1966. "Some reflections on competence and performance." In Lyons and Wales. 1966.

Garvin, P. (ed) 1970 a. *Method and theory in linguistics*. The Hague: Mouton.

— 1970 b. *Cognition. A multiple view*. London: Macmillan and Co, Ltd.

Goodman, N. 1952. "On likeness of meaning". In Linsky (ed.). 1952. 67 - 74.

Goodman, N. 1967. „The epistemological argument". *Synthese 17.1*. 23–28.

Greismas, A. J. et. al. (eds). 1970. *Sign, language, culture*. The Hague: Mouton.

Grosu, A. 1971. "Some perceptual and grammatical constraints". *Working papers in linguistics 8*. 137 - 49.

Harman, G. 1967. "Psychological aspects of the theory of syntax". *Journal of philosophy 64*. 75 - 87.

— 1968. "Review of Cartesian linguistics". *Philosophical review 77*. 229 - 35.

— 1970. "Deep structure as logical form." *Synthese 21*. 275 - 97.

Hayes, J. R. (ed). 1970. *Cognition and the development of language*. New York: John Willey and Sons, Inc.

Henle, R. J. 1969. "Science and the humanities". In Fisher and Murray (eds). 1969. 1 - 22.

Hiż, H. 1967. "Methodological aspects of the theory of syntax" *The journal of philosophy. 64*. 67 - 74.

Katz, 1964. "Mentalism in linguistics". *Language 40*. 124 - 37.

—, Postal, P. 1964. *An integrated theory of linguistic description*. Cambridge, Mass.: The MIT Press.

Krzeszowski, T. 1971. "Equivalence, congruence and deep structure". In Nickel, G. 1971. 37 - 49.

Küng. G. 1967. *Ontology and the logistic analysis of language*. Dodrecht, Holland: D. Reidel Publishing Co.

Lakoff, R. 1966. "Some verbs of change and causation". *Harvard Computation laboratory report to NSF on mathematical, linguistic and automatic translation, NSF 20*. Cambridge, Mass.

— 1967. "Instrumental adverbs". *FL 4. 1.4 - 29*.

— 1970 a. *Irregularity in syntax*. New York: Holt, Rinehart and Winston.

— 1970 b. "Linguistics and natural logic". *Synthese 22. 151 - 271*.

— 1970 c. "Global rules". *Language 46. 627 - 39*.

— 1971 a. "On generative semantics". In Steinberg and Jacobovits. 1971. 232 - 297.

— 1971 b. "Presupposition and relative well-formedness". In Steinberg and Jacobovits. 1971. 329 - 340.

Laszlo, E. 1965. "Is the primary language an object language". *FL 1. 157 - 170*.

Lenneberg, E. K. 1971. "Language and cognition". In Steinberg, D., Jacobovits, L. 1971. 536 - 557.

Linsky, L. (ed). 1952. *Semantics and the philosophy of language*. Urbana: The University of Illinois Press.

Lyons, J., Wales R. (eds). 1966. *Psycholinguistics papers: proceedings of the 1966 Edinburg conference*. Edinburg: University Press.

MacKinnon, E. 1969. "Analysis and the philosophy of science". In Fisher and Murray. 1969. 212 - 245.

McKinney, J. 1971. *The structure of modern thought*. London: Chato and Windus.

Maclay, H. 1971. "Linguistics. Overview". In Steinberg and Jacobovits. 1971. 157 - 181.

Mason, J., Peterson, G. 1967. "On the problem of describing grammar of natural languages". *Language and speech 10*. 107 - 22.

McCawley, J. 1968 a. "The role of semantics in grammar". In Bach and Harms. 1968. 124 - 169.

— 1968 b. "Lexical insertion in a transformational grammar without deep structure". *Papers of Chicago linguistic society 4*. 71 - 80.

— 1970. "Semantic representation". In Garvin 1970 b. 227 - 47.

— 1972. "Syntactic and logical arguments for semantic structure". Reproduced by the Indiana University Linguistics Club.

McNeil, D. 1971. "Are there specifically linguistic universals?". In Steinberg and Jacobovits. 1971. 530 - 35.

Morgan, J. 1969. "On the treatment of presupposition in transformational grammar". *Papers of Chicago linguistic society 5*. 117 - 139.

Morgenbesser, S., Suppes, P. and White, W., (eds). 1969. *Philosophy, science and method. Essays in honour of Ernest Nagel*. New York: St. Martin's Press.

Nickel, G. (ed). 1971. *Papers in contrastive linguistics*. Cambridge: University Press.

Osgood, C. 1971. "Where do sentences come from?". In Steinberg and Jacobovits. 1971. 497 - 529.

Penn, J. M. 1972. *Linguistic relativity and innate ideas*. The Hague: Mouton.

Peters, P. S. 1970. "Why there are many universal bases?" *Papers in linguistics 2. 1. 27 - 43*.

—, R. W. Richtie, 1969. "A note on the universal base hypothesis". *JL 5. 150 - 152*.

Postal, P. 1971. "On the surface verb *remind*". In Fillmore and Langendoen. 1971. 189 - 270.

Prideaux, G. 1971. "On the notion 'linguistically significant generalization'. *Lingua 26*. 337 - 347.

Putnam, H. 1967. „The innateness hypothesis and explanatory models in linguistics. *Synthese 17.1*. 12 - 22.

Quine, W. V. 1960. *Word and object*. Cambridge, Mass.: The MIT Press.

— 1969. "Reply to Chomsky". *Synthese 19*. 174 - 83.

— 1970. "Methodological reflections on current linguistic theory". *Synthese 21*. 386 - 89.

Reibel, D., Schanc, S. (eds). 1969. *Modern studies in English: readings in transformational grammar*. Englewood Cliffs, New York: Prentice-Hall, Inc.

Ross, J. R. 1968. *Constraints on variables in syntax.* Unpublished doctoral dissertation. Reproduced by the Linguistic Club of Indiana University.

— 1970. "Gapping and the order of constituents". In Bierwisch and Heidolph. 1970. 249 - 260.

Russell, B. 1924. "Logical atomism". In Ayer 1959. 31 - 50.

Russel, B. 1940. *On inquiry into meaning and truth*. London: Allen and Unwin.

Saporta, S. 1967. *Psycholinguistic theories and generative grammars*. Oregon: Oregon State System of Higher Education.

Sadock, J. M., and Vanek, A. L. (eds). 1971. *Studies presented to Robert B. Lees by his students*. Edmonton, Alberta: Linquistic Research, Inc.

Sadock, J. M. 1971. „Whimperatives". In Sadock, J. M. and Vanek, A. L. (eds). 1971. 223–38.

Sebeok, T. (ed). 1966. *Current trends in linguistics*. The Hague: Mouton.

Shopen, T., M. Konare. 1970. "Sonrai causatives and passives" *Studies in African linguistics 1*. 211 - 251.

Shopen, T. 1972. "Logical equivalence is not semantic equivalence". *Papers of Chicago linguistic society 8*. 340 - 50.

Starosta, S. 1969. Linguistics and anti-science". *Working papers in linguistics 11*. (Honolulu). 91 - 127.

Steinberg, D., Jacobovits, L. (eds). 1971. *Semantics. An interdisciplinary reader in philosophy, linguistics and psychology*. Cambridge: University Press.

Stockwell, R. et al. 1965. *The grammatical structures of English and Spanish*. Chicago: University of Chicago Press.

Suszko, R. 1970. "Remarks concerning the relations between linguistics and logic". In Greismas, et. al. 1970. 50 - 57.

Tikofsky, P., Reiff D. 1970. "Structural aperception in the absence of syntactic constraints". *Language and speech 13*. 240 - 253.

Verhaar, J. 1970. "Method, theory and phenomenology". In Garvin 1970 a. 42 - 83.

Watt, W. 1970. "On two hypotheses concerning psycholinguistics". In Hayes 1970.

Weinreich, U. 1966. "Explorations in semantic theory". In Sebeok, J. 1966.

Wittgenstein, L. 1961 (1921) *Tractatus logico—philosophicus*. London: Routledge and Kegan Paul.

— 1929. "Some remarks on logical form" *Proceeding of the Aristotelian society 19*. 162 - 171.

Zwicky, A. 1971. "Remarks on directionality". *Working papers in linguistics 8*. 156 - 163.