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INTERPRETIVE VS. GENERATIVE SEMANTICS – TWO WAYS OF MODELLING MEANING IN GRAMMAR

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1. INTRODUCTION

1.0. Within the paradigm of main-stream generative theory, two basic modes of inquiry can be distinguished: interpretive semantics (IS) and generative semantics (GS). In IS the semantic component is held to interpret the syntactic structures generated by the grammar, hence the name of the approach: "interpretive semantics. In contrast, the model proposed by the advocates of GS assumes that what generates sentences is a uniform semanto-syntactic component, hence the name of the model: "generative semantics."

2.0. The name "interpretive semantics" has come to be associated nowadays with the so-called *Extended Standard Theory* (EST), a model of grammar, developed by Noam Chomsky in 1971. EST evolved out of the so-called *Standard Theory* (ST), proposed by Chomsky in his 1965 book *Aspects of the Theory of Syntax*. ST was the first "complete" model of grammar which consisted of the syntactic, semantic and phonological components. The main representatives of EST are N. Chomsky, A. Akmajian, R. Jackendoff and others. It is this theory that is competing nowadays with GS for the title of "the best theory."

3.0. GS owes a great deal to such linguists as J. McCawley, G. Lakoff, J. R. Ross, P. Postal and P. Seuren. This model of grammar is discussed

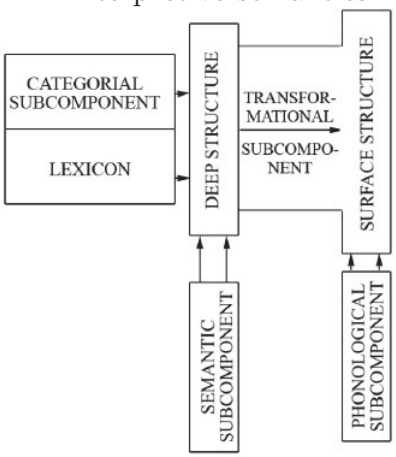
briefly in the second part of this paper, and in detail, in the third part of this article.

4.0. The paper makes an attempt to compare and evaluate GS and EST, the latest model of IS. The first part includes diagrams and descriptions of GS and EST, while the part that follows presents the basic assumptions of the two models. The third part discusses the internal relations between the components of grammar postulated within each model.

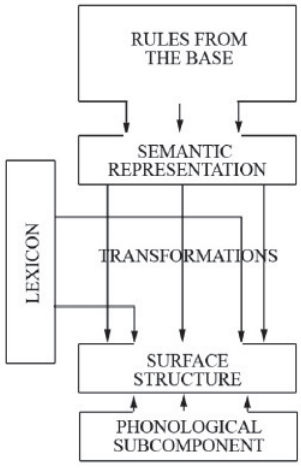
2. STANDARD THEORY AND GENERATIVE SEMANTICS

1.0. Both interpretative and generative models of grammar attempt to explain the linguistic — unconscious by nature — knowledge of the user of language. The diagrams representing IS and GS are given below:

Interpretive semantics[1]



Generative semantics



2.0. In the model of interpretive semantics, the syntactic component consists of a categorial subcomponent, the lexicon, a level of deep structure, a transformational subcomponent and a level of surface structure. The phrase structure rules (PSRs) of the categorial subcomponent generate the so-called trees or 'phrase markers', which capture the relations between particular elements of a sentence. The branches of the trees, ending in nodes, are labelled by grammatical category symbols. The categorial subcomponent together with the lexicon form the so-called base of the syntactic component. Owing to the rewriting rules of the categorial subcomponent, an infinite number of sentences can be generated. Below we give a sample of the rewriting rules:

1. S $\rightarrow$ NP + VP

[1]This is Chomsky's model of grammar from 1965 — the Standard Theory.

2. VP → V + NP
3. NP → NP + S

S = sentence NP = nominal phrase VP = verbal phrase.

Rule 1 informs us that the sentence consists of a nominal phrase and a verbal phrase. Rule 2 rewrites the verbal phrase as a verb plus a nominal phrase. Finally, Rule 3 states that the nominal phrase consists of a nominal phrase and a sentence.

2.1. The rules of the categorial subcomponent can create a sentence consisting of only an NP and a VP, as in 'Chłopiec je' [A boy is eating] (cf. Rule 1) or, after the application of appropriate transformations, a sentence consisting of an NP, a VP, a V or an S, as in 'Chłopiec je jabłko, które dała mu matka' [A boy is eating an apple which his mother gave him] (Rules 1, 2, 3, after being collapsed into one rule: S → NP + VP + [V +NP (NP+S)]).

2.2. After the rewriting rules of the categorial subcomponent have created a phrase marker, the special context-sensitive rules, called lexical insertion rules, insert words from the lexicon under appropriate categorial nodes in the tree. As a result, deep structure is formed. Interpreted by the rules of the semantic component, deep structures are operated on by transformational rules which successively derive surface structures.

2.3. Surface structures, in turn, provide an input to a phonological representation of a linguistic unit from which — through the successive application of phonological rules — the unit's phonetic manifestation is derived.

3.0. In the model of grammar postulated by the advocates of GS no distinction is drawn between the semantic and syntactic components as the semanto-syntactic component, or to be more exact, the rules of the base, generate semantic trees with the categorial nodes labelled with logic symbols, including S — sentence, V — predicate, and NP — argument.

3.1. There is no well-defined level of deep structure in the GS model; instead all meaning in GS resides in the semanto-syntactic component, that is (i) in the semantic representation, (ii) the lexicon and (iii) in the partial semanto-syntactic structures derived by the so-called predicate raising rule (see below). The two components postulated in the IS model, namely the syntactic and the semantic component, are thus replaced in GS by one semanto-syntactic component.

3.2. The difference in the application of transformations operating in IS and in GS is that whereas in GS lexical insertion rules operate jointly with

other transformations such as, say, the passive transformation, in IS, the transformations apply only after all lexical items have been inserted under appropriate nodes in the phrase markers, that is, after the deep structure of the sentence has been formed.

4.0. It should be stressed that whereas in Standard Theory transformations are held to preserve meaning, in the Extended Standard Theory model, they are capable of changing the meaning of a sentence in that they create appropriate syntactic contexts for semantic interpretation to be assigned at both the deep and surface structure levels of the sentence.

5.0. As far as the phonological component is concerned, it has no influence on the meaning of the sentence in either Standard Theory or in the Generative Semantics model; its role in the two models is purely interpretive. This is not so, however, in the EST model. In EST, semantic interpretation applies at both deep and surface structure, and because the rules of the phonological component apply at the level of surface structure, semantic interpretation in the EST model is, *eo ipso*, sensitive to phonological information as well.

3. THE CONTROVERSY BETWEEN GS AND IS

1.0. The dispute between IS and GS mainly concerns the autonomy of syntax, which in IS is held to generate deep structures of sentences. Specifically, with the emergence of new linguistic facts, especially those related to sentence meaning, deep became more remote from surface structures. Because deep structures started to resemble semantic representations, the question was raised whether the idea of deep structure was needed at all. Why — Lakoff and Ross (1967) asked — can the semantic component not generate sentences accompanied with their semantic representations, which would eliminate completely the deep structure from the model of grammar?

1.1. Because Standard Theory was unable to account for phenomena such as focus assignment, presupposition and the use of quantifiers in the sentence (see below), a new theory was called for. This theory came to be known as Generative Semantics. To counter the solutions offered by GS, Chomsky proposed to modify the Standard Theory model. The new model of IS, known as the Extended Standard Theory, preserves, just like the Standard Theory model, the autonomy of syntax and retains deep structure.

2.0. The absence of deep structure in the Generative Semantics model is not the only bone of contention between GS and IS. The models also make different claims with respect to the lexicon and word structure. GS lays emphasis on the semantic complexity of words. The theory of so-called *lexical decomposition* allows for the explanation of why it is possible to say,

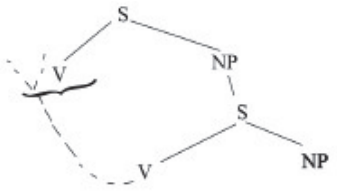
e.g.: 'Wymknąłem się przez okno' [I slipped out through the window], but not: 'Okno zostało wymknięte się przeze mnie' [The window was slipped out through by me]. If the expression 'wymykać się' [to slip] has the complex semantic structure of the type 'biec sobie od (czegoś)' [to run from (something)], then the passive transformation cannot be applied to such expressions, since one of them, i.e. 'biec' [to run], is intransitive. This means that the word 'wymknięty' [slipped] in the passive sentence: 'Okno zostało wymknięte się przeze mnie' [The window was slipped out through by me] is improperly used as the conditions for the application of the passive transformation to the component parts of the verb 'wymykać się' [to slip] are not satisfied.

2.1. IS rejects the concept of decomposition of words' meanings of the sort presented above. According to the advocates of IS, there are no syntactic relations that manifest themselves in transformations between words and their component parts. The so-called transformation of *predicate-raising*,[2] which assembles a word from the word's particular component parts, is, according to the advocates of IS, "syntactically unmotivated" (Chomsky 1972: 151-2). The proponents of IS also reject generative semanticists' claim that the lexical insertion rules operate jointly with other transformations. In the IS model, grammatical transformations can apply only after all lexical items have been inserted under appropriate nodes in the trees.

2.2. According to IS, the example involving the passive voice, mentioned above, is ungrammatical because the verb 'wymykać się' [to slip] is intransitive, hence the passive transformation cannot apply. What this means, however, is that on this approach, any verb marked as "intransitive" in the lexicon excludes the possibility of capturing more general meaning-related conditions on the use of the passive voice.

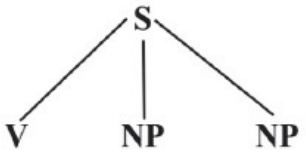
3.0. Interpretive semanticists challenge the view on semantic representation endorsed by GS. According to generative semanticists, the semantic representation assumes the form of a tree with symbols taken from logic

[2]The transformation raises the predicate (V) to a higher branch of a derivational tree, which can be presented as follows:



Consequently, there are two predicates that form one expression on the left side of the tree.

such as predicate (V) or argument (NP):



where the predicate (v) comes first, followed by one up to three arguments (NP). The so-called VSO hypothesis, proposed by McCawley (1970), assumes that English is a language of the VSO type, which means that in the semantic representation of English sentences, the order of elements is as follows: verb (V), subject (NP) and object (NP). The hypothesis considerably simplifies the operation of the predicate raising transformation. Otherwise, so the argument goes, the predicate raising transformation would be a very complicated operation, assuming that English sentences can be decomposed into a nominal phrase (NP) and a verbal phrase (VP). IS rejects the VSO hypothesis as completely arbitrary and syntactically unmotivated.

4.0. As already stated, in the Extended Standard Theory not only deep structures, but also surface structures are interpreted semantically. This means that surface structure has an influence on the meaning of the sentence. This conception was severely criticised by the advocates of GS. Thus, Postal (1972) undertakes to show that, seen from a methodological point of view, the GS model of grammar is a "better theory" than the EST model. For, unlike IS, the theory of GS is, according to Postal, a "uniform theory". Where IS needs two types of rules: rules linking the deep structure to the surface structure (transformations) and rules linking the deep structure to the semantic description of the language (the interpretative rules of the semantic component), in GS only one type of rules is needed to link the semantic structure with the surface structure representation, namely syntactic transformations which are meaning-sensitive.

5.0. Both IS and GS aim at characterizing the intuitive knowledge of a native user of a language. In the IS model, deep structure functions as a kind of "interface", as a point of contact between the syntactic and the semantic component. Meaning in IS is purely analytical, i.e. it resides exclusively in the meanings of the parts of the sentence.

5.1. For the advocates of IS, a sentence can be either grammatical or ungrammatical. What counts is the intuitive grammaticality judgment of a language user. In GS, however, because the meaning of a sentence is also determined by extralinguistic factors such as the context in which an expression is used, beliefs or convictions of a language user, one should

speak rather of acceptability or unacceptability of a sentence. In contrast, IS excludes extralinguistic context from its analysis of meaning. For the adherents of IS extralinguistic context is associated with performance, not competence. It is competence, not performance that is, according to Chomsky, the proper object of linguistic inquiry.

5.2. The issue of "extralinguistic context" is thus another disagreement point between the two theories. Katz and Bever (1974), for instance, accuse generative semanticists of "opening the way for empiricism in linguistic studies" by taking into consideration the convictions and beliefs of a language user. According to these authors, IS, which represents a rational mode of inquiry, is much superior to "irrational theories" such as GS. By embracing the Cartesian rationalist view and postulating the existence of Universal Grammar (Descartes' 'idee innate'), their model grammar, the adherents of IS claim, can readily account for language acquisition by a child (i.e. for the fact that children can learn a given language effortlessly when exposed to it and that they can learn it no matter how poor linguistic data they are exposed to are).

6.0. Yet, it seems that it is too early — at the present state of the development of GS — to unequivocally state, as Katz and Bever do, that incorporating in the model of grammar the convictions of a language user is tantamount to "opening the door through which empiricism may enter linguistic studies." Although, according to the advocates of IS, beliefs and convictions may be explained on the grounds of a separate theory (i.e. linguistic pragmatics), it seems that for methodological reasons, one general theory is better than two separate ones, with each of them explaining only a part of the phenomena otherwise explained by the more general theory.[3]

4. RELATIONS BETWEEN THE COMPONENTS IN IN THE TWO MODELS OF GRAMMAR

1.0. As noted above, the rejection of deep structure by the adherents of GS considerably simplifies the model of grammar. In this section an attempt will be made to describe the inner relations holding between the levels of descriptions in each model.

1.1. In the GS model, transformations are powerful devices; their role is twofold: a transformation must not only be sensitive to the grammaticality

[3]This approach is represented by P. Postal (1972) and J. McCawley (1972: 508).

of a sentence structure, but also must link surface structures of sentences to their meanings, i.e. to their logical-semantic forms.[4]

1.2. In contrast, the transformational component in IS is a great deal more constrained. Here, transformations have only one function to perform: to link a deep structure to the surface structure regardless of the sentence's meaning. As mentioned above, meaning in this model is determined by the interpretive rules of the semantic component. The syntactic component in IS is extensively developed as it must not only guarantee the grammaticality of a sentence, but it must also include the information about the conditions on the application of the semantic rules.

1.3. The deep structure, and more specifically its semantic representation, assigns to each sentence a set of elements characterising the sentence such that the sentence's ambiguity at the levels of both its deep structure and its semantic representation could be eliminated. Thus a sentence such as (1):

(1) 'Krytyka studentów spotkała się z powszechnym oburzeniem' [The criticism of students caused general indignation] is ambiguous.
can be interpreted as either (1a) or (1b):

(1) a. 'Ktoś skrytykował studentów, co spotkało się z oburzeniem.' [Somebody criticised students, which caused indignation]

b. 'Studenci kogoś (coś) skrytykowali, co spotkało się z oburzeniem.' [Students criticised somebody (something), which caused indignation]

Sentence (1) has thus two separate deep structures (or two semantic representations): (1a) and (1b), respectively.

Consider now sentence (2):

(2) '(Janek) NP_1 widzi (Janka). NP_2'[(John) NP_1 sees (John) NP_2]

According to the Standard Theory, if NP_1 equals NP_2, then the reflexive transformation must obligatorily apply:

(2) a. 'Janek widzi siebie.' [John sees himself].

[4]In GS the semantic structure of a sentence is represented by logico-semantic formulas (Lakoff 1972: 559), modelled on łukasiewicz's idea of logical formulas: a predicate followed by one or more arguments (McCawley 1972: 513).

How about sentence (3), then?:

(3) (Każdy artysta) NP_1 chwali (każdego artystę) NP_2. [Every artist praises every artist]

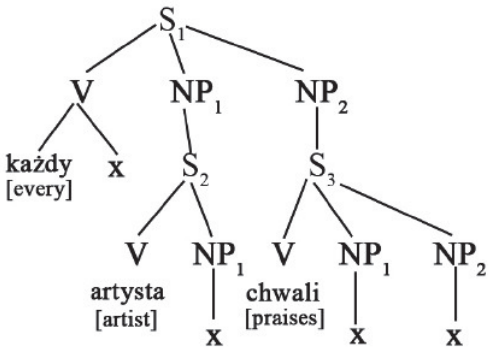
It is clear that because in (3) we have two isomorphic nominal phrases, 'każdy artysta' [each artist]), the reflexive transformation must apply. As a result, we get a sentence such as (3a):

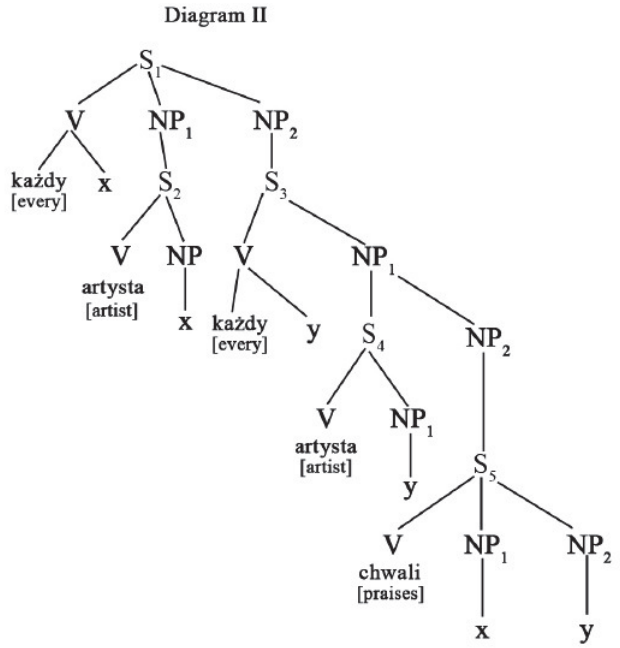
(3) a. 'Każdy artysta chwali siebie.' [Each artist praises himself].

Yet, note that sentence (3) is grammatical even if the reflexive transformation has not applied, in contrast to (2), which is incorrect under the assumption that $NP_1 = NP_2$. This phenomenon, seemingly irregular, cannot be explained on the grounds of the Standard Theory, where the reflexive transformation is obligatory in such cases.

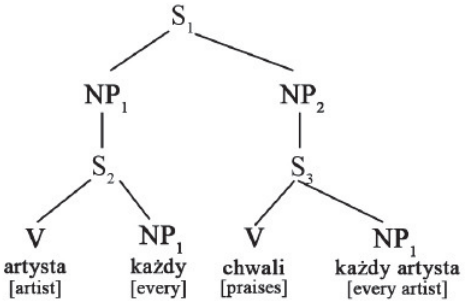
1.4. The linguistic facts discussed above can be explained on the grounds of GS as follows. Sentence (3) is assigned a semantic representation which overlaps with the logical form of the sentence. As a result, we get the following two logico-semantic representations:

Diagram I





The semantic representations of sentence (3), given above, show which variable, x or y, is linked with the appropriate argument (NP). Diagram I shows that (both) arguments are the same (NP1 = x and NP2 = x) and thus trigger the reflexive transformation. First, however, a special transformation, the so called quantifier-lowering transformation,[5] assigns the quantifier 'every x' (which is also the predicate[6]) to NP_1 under S_2 and to the arguments NP_1 and NP_2 under S_2. As a result, we get the following tree:

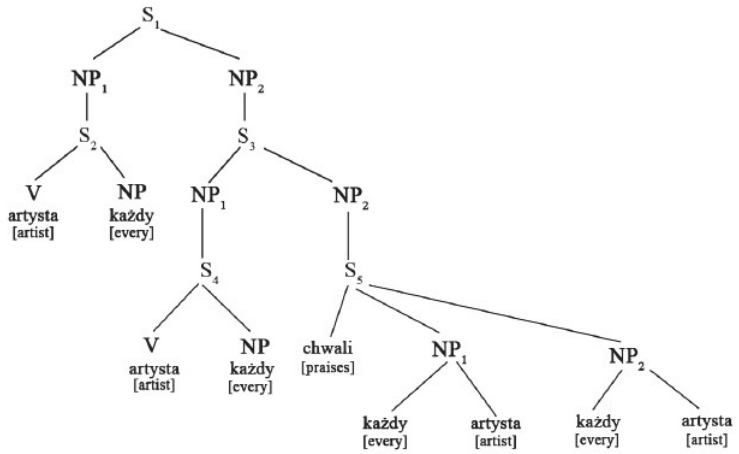


Now that the tree is subjected to the operation of the reflexive rule, we can derive the sentence 'Każdy artysta chwali siebie' [each artist praises

[5]Since quantifiers are beyond the quantified expressions (they are higher on the trees than these expressions), a special transformation must lower them, thus connecting them to the expressions.

[6]In GS, the predicate can be a verb, a noun, the particle 'not', the conjunctions 'and', 'or' and quantifiers representing the conjunctions 'and' and 'or'.

himself]. When, however, the quantifier lowering applies, then the following tree structure is derived:



which reads: 'Every artist praises every artist'.

1.5. Note that the introduction of the variables to the semantic representation requires a new rule: the quantifier-lowering transformation, which expands the transformational component. The above analysis shows that the reflexive transformation and the quantifier-lowering transformation are applied in a fixed order: first, the quantifier-lowering transformation operates and then, the reflexive transformation. Otherwise, the process of sentence derivation could not proceed as the reflexive transformation can be applied only to the structure resulting from quantifier lowering. In GS, transformations operating on sentence structures function as filtering tools; they block the derivation of the sentence when the conditions for applying the transformations are not satisfied.

1.6. Although, as already remarked, sentences such as (3) and (3a) cannot be properly analysed in the framework of the Standard Theory, they can be given a principled account in the Extended Standard Theory, owing to the application of the interpretative semantic rules.[7] In this case *coreference* is established between the reflexive pronoun (NP_2) and its antecedent (NP_1) whenever the structural (syntactic) conditions for the application of the reflexive rule are satisfied. Thus, if a structural tree configuration looks as the one given below

X	NP_1	Y	NP_2	Z
1	2	3	4	5

[7]The analysis is based on the theory developed by Jackendoff (1972).

[refl]

then the structure enters the table of coreference,[8] which establishes a semantic link between NP_2[+refl] and NP_1. However, if the coreference between NP_1 and NP_2 cannot be established, then such a structure is ruled out, i.e. the derivation of the sentence is stopped. Reducing the power of the transformational component in EST, then, leads — through the introduction of the table of coreference — to the expansion of the semantic component.

2.0. As mentioned above, Chomsky's model of IS from 1965 (the Standard Theory) assumes that transformations do not change meaning. Consider now sentences such as (4) and (5), which involve presupposition and focus.[9] In particular, note that in (4):

(4) 'Antek wie, że JANEK zjadł jabłko.' [Anthony knows that JOHN ate the apple]

the emphasised JANEK [JOHN] is the focus, while the fact that the apple has been eaten is the presupposition. In sentence (5), however, the APPLE is the focus:

(5) 'Antek wie, że Janek zjadł JABŁKO.' [Anthony knows that John ate the APPLE].

Now, according to the Standard Theory model, because sentences such as (4) and (5) have different meanings, their deep structures should be different. This need not be so in the Extended Standard Theory, however, where the semantic rules are said to apply at both deep and surface structure. Indeed, according to Chomsky (1972) and Jackendoff (1972), sentences such as (4) and (5), although they differ in meaning, are claimed to have the same deep structure; the differences in meaning arise at their surface structures, when the FOCUS-assignment rule applies.[10]

2.1. Consider now the following sentences involving the quantifier lower-

[8]The table of coreference was introduced in the model of IS developed by Jackendoff.

[9]In generative grammar, 'presupposition' (theme) is the information that is known to both, the speaker and the hearer. 'Focus' (rheme) is the information included in the sentence which the speaker assumes to be unknown to the hearer.

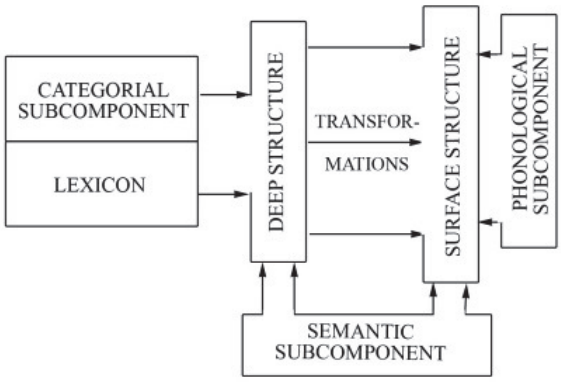
[10]In GS, sentences (4) and (5) differ as regards their semantic representations. A special marker "focus" will be introduced to their semantic representations.

ing rule:[11]

(6) 'Niewiele strzał trafiło do celu.' [Not many arrows hit the target]
(7) 'Wiele strzał nie trafiło do celu.' [Many arrows didn't hit the target]
(8) 'Cel nie został trafiony wieloma strzałami.' [The target wasn't hit by many arrows]

According to EST, the surface structure arrangement of the quantifiers and negative particles here is responsible for the synonymy of (6) and (8) but not for the synonymy of (6) and (7), despite the fact that, according to EST, the deep structures of sentences (6), (7) and (8) are identical. Indeed, if the surface subject has a qualifier as in (6), then (6) (with sentence negation) has a different meaning than (7) (with verb-phrase negation). If, however, the quantifier 'many' is a part of the noun phrase which follows the verb, then the order of the negation and the quantifier is identical in both the sentence negation and in verb-phrase negation. This being the case, (6) is the paraphrase of (8). From the above considerations it follows that both deep structure and surface structure are interpreted semantically, because, as already mentioned, the surface arrangement of quantifiers influences the meaning of the sentence.

2.2. The model of grammar that emerges now looks as follows:[12]

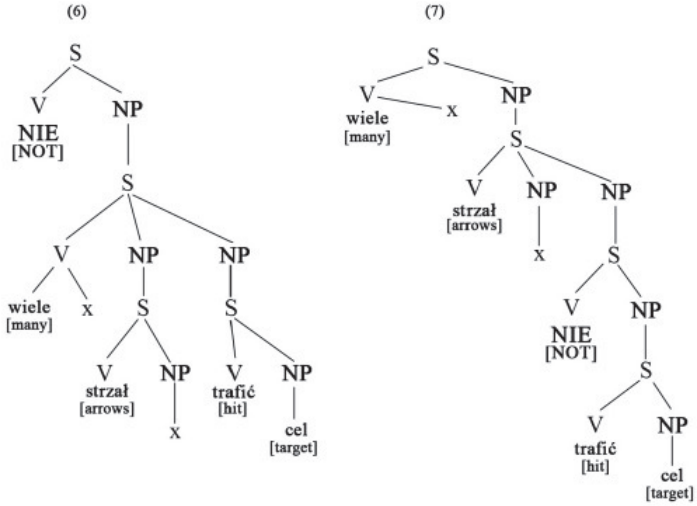


This model of grammar (Extended Standard Theory) differs from Standard Theory in that in EST the interpretative rules of the semantic component interpret both the deep and surface structure.

3.0. Sentences (6), (7) and (8) are analysed differently in GS. In Generative Semantics quantifiers are introduced to the semantic representation, but

[11]The author of the sentences is Jackendoff (1972: 327).
[12]This is Chomsky's (1972) model of grammar.

are beyond their quantified arguments. There exist two different semantic representations for (7) and (8), depending on the scope of negation.



3.1. The above structures undergo now the quantifier-lowering transformation, which obeys the so-called derivational constraint. The constraint on quantifier-lowering can be formulated as follows (Lakoff 1971: 240):

Quantifier A which commands quantifier B in the surface structure, must also command B in the semantic representation.

Derivational constraints of this sort inevitably enhance the power of the transformational component. In GS, this component includes node-acceptability conditions, that is, rules which generate semanto-syntactic trees, transformations that derive surface structures from semantic representations, and the above-mentioned constraints which restrict the application of transformations, e.g. the constraint restricting the quantifier-lowering transformation.

Consider now the so-called Coordinate Structure Constraint (Lakoff 1972: 613):

No transformation can move an element within or out of a coordinate structure.

This constraint blocks ungrammatical sentences such as (10) while "letting through" sentences such as (9):

(9) 'Jan jest podobny do każdego maszynisty.' [John looks similar to every

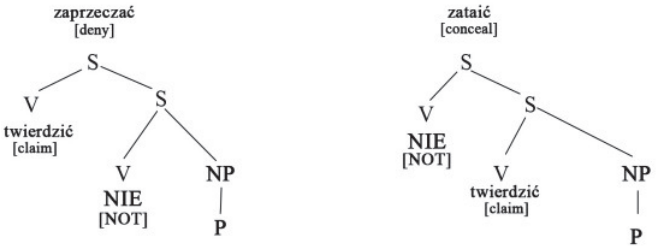
engine-driver]

(10) 'Jan i każdy maszynista są podobni.' [John and every engine-driver look similar]

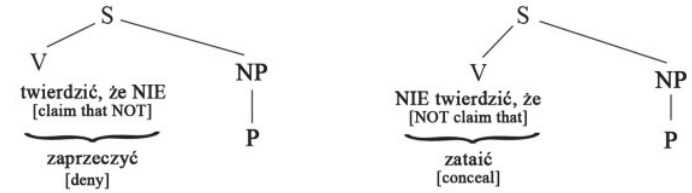
The quantifier 'every' in (10) quantifying 'engine-driver' has been moved to the coordinate structure 'John and', hence the unacceptability of (10).

The Coordinate Structure Constraint blocks not only unacceptable sentences but also unacceptable words. A case in point could be a non-existent Polish word 'podobisty' [similarish] which would mean: 'x is and y similar'.

4.0. Note that the non-word 'podobisty' can be shown to be ruled out by the Coordinate Structure Constraint precisely because this constraint operates on the complex word structure. Such complex structures have the words zaprzeczać' [deny] and 'zataić' [conceal], which, according to GS, are claimed to contain an element of negation:



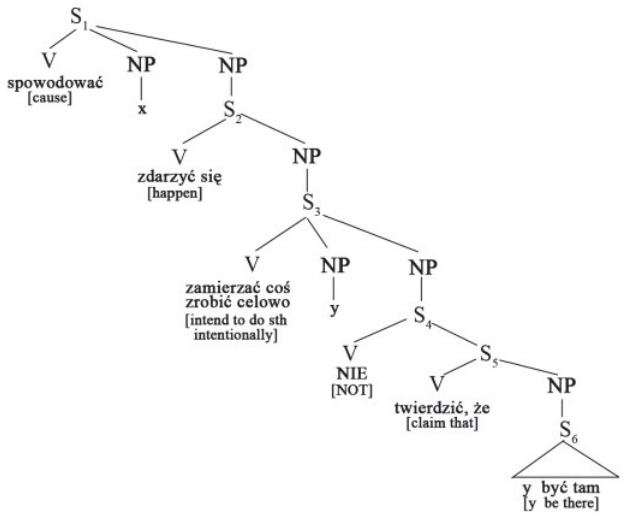
4.1. What is important in the case of these two expressions is the localization of the predicate 'not' in the trees; because the scope of 'not' is different, the meaning of these words is different too. The "lexical decomposition" of this sort has far reaching consequences for the structure of the lexicon in GS. Words take the form of either 'not assert that p' or 'assert that not p'. Thus words such as 'zaprzeczyć' [deny], 'zdementować' [deny, contradict] or 'zanegować' [negate] are decomposed into 'assert that not p'. Apart from lexically decomposed items, the lexicon also contains syntactic information that, for instance, a given verb is transitive or not, or phonological information that, say, the cluster 'ng' never occurs initially in Polish. To create words such as 'deny' or 'conceal', the transformation of *Predicate-Raising* must be applied. As a result of its application the following structures are derived:



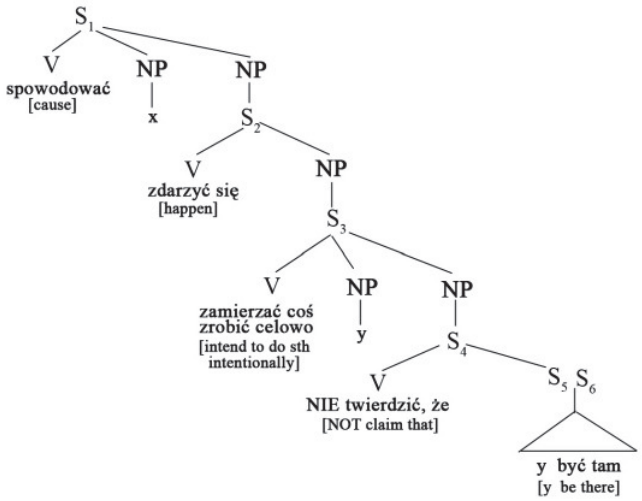
Naturally, the Predicate Raising transformation applies not only in morphology but also in syntax. Thus the derivation of a sentence such as (11) might looks as follows:

(11) 'Jan namówił Roberta, aby zataił, że on (Robert) tam był.' [John persuaded Robert to conceal that he (Robert) was there]

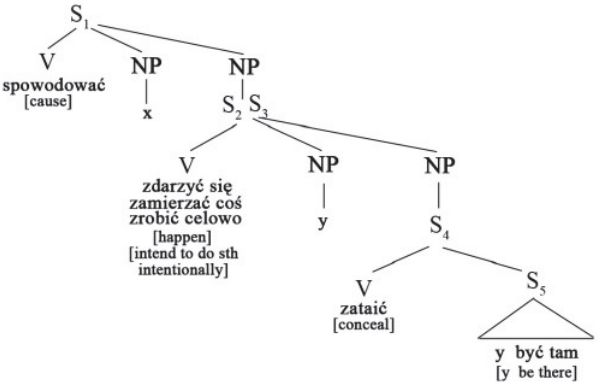
where 'persuade' is decomposed into '(to) cause (that) happens (that) intend (to do something) intentionally'



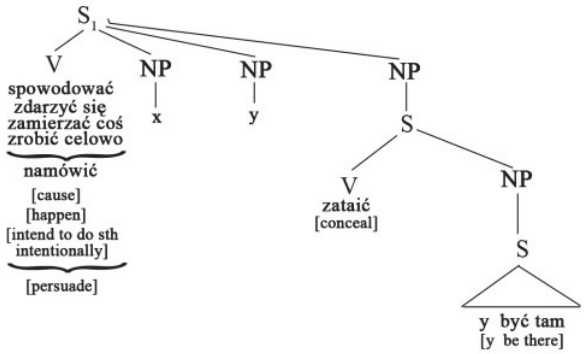
The predicate-raising transformation operating on S_4 derives now:



The same transformation when applied to S_2 and S_3 yields the following structure:



Finally, the transformation applied to the above structure will produce the surface structure of the sentence in (11):

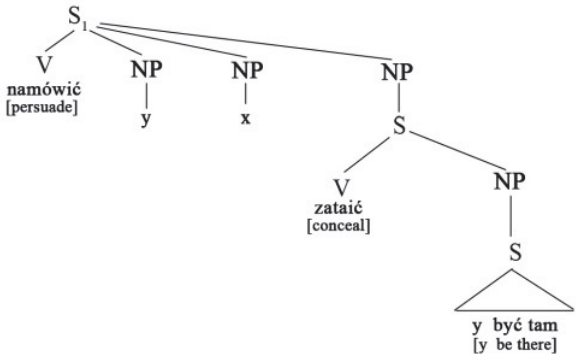


The words 'persuade' and 'conceal' replace now the corresponding predicates.

It should be stressed that in GS the lexical transformation of Predicate Raising transformation applies jointly with other transformations. Thus consider the passive sentence in (12):

(12) 'Robert został namówiony przez Jana, aby skłamał, że on (Robert) tam był.' [Robert has been persuaded by John to lie that he (Robert) was there]

The Passive transformation which applies in this case changes the positions of NPx and NPy under S_1:



5.0. In both models of IS — in the Standard Theory and the Extended Standard Theory — a clear-cut division is drawn between lexical insertion rules and regular transformational rules. In Standard Theory, regular transformations carry out morphological derivations and, ipso facto, change grammatical categories, e.g. 'śpiew' [singing] (noun), 'śpiewać' [to sing] (verb), śpiewny [melodious] (adjective).

5.1. In the Extended Standard Theory, however, there are no derivational transformations[13] and the power of the transformational component is significantly weakened. Nominal compounds, such as 'zburzenie miasta przez nieprzyjaciela' [the destruction of the city by the enemy] will not be produced from structures such as 'nieprzyjaciel zburzył miasto' [the enemy destroyed the city] — these compounds are as such in the deep structure. The assertion that transformations cannot participate in derivational processes is called the Lexicalist Hypothesis.

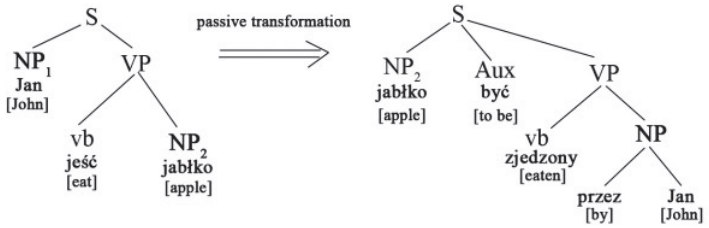
5.2. The adoption of the Lexicalist Hypothesis leads to the extension of the lexicon which must include now all the words that are morphologically complex. Thus in the case of the word 'śpiewać' [to sing], the information in the lexicon is as follows:

[13]The exception being the gerundive derivatives.

śpiew [singing] – root, + process
śpiewać... [to sing] +V (verb), + —NP
śpiew... [singing] +N (noun) common, uncountable, inanimate
śpiewanie... [singing] +S Nom (gerund)
śpiewający... [singing] +A (adjective), + —NP

5.3. The Lexicalist Hypothesis weakens the transformational component further as it allows the elimination of the passive transformation (Freidin 1973). A transitive verb is, in such a case, marked as an adjective in the lexicon (the past participle which creates the passive, e.g. 'śpiewany' [sung], is marked as an adjective). Two semantically equivalent sentences: the active and passive have one abstract representation. Owing to the process of lexicalization, 'śpiewać' [to sing] and 'śpiewany' [sung]are represented by means of abstract features[14] and can be lexicalized in two ways. Choosing the adjective results in a passive sentence, while choosing the verb results in an active sentence. The semantic link between the passive and the active voice is ensured by the application of the rules from the extended semantic component.

6.0. A transformational explanation of the passive voice in the framework of Standard Theory means that the passive transformation changed the positions of nominal phrases NP_1 and NP_2 (when $NP_1 = NP_2$) and introduced the auxiliary word 'be'. In this case two operations take place:

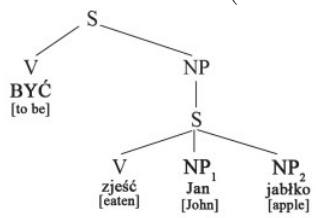


According to Chomsky (1965), the deep structure of an active sentence differs from the deep structure of a passive sentence in that the latter has a verbal phrase with an adverb of manner. Here, the semantic relations between the active and passive voice are not analysed yet as this is the function of the interpretative semantic rules in the extended semantic theory.

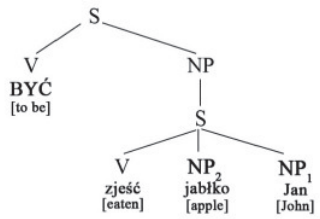
6.1. The operation of the passive transformation is significantly simplified when, as the adherents of GS claim, the semantic representation of the above

[14]Each word in the lexicon is represented as a set of abstract features, e.g. the word 'girl' has the following features: [+animate], [+human], [-male]. The abstract features of the verb 'śpiewać' [to sing] are presented above.

sentence is as follows (McCawley 1970a):



Then the passive transformation makes a single operation — it changes the positions of NP_1 and NP_2:



7.0. In the light of the foregoing discussion, it should be clear that there is some kind of "explanatory trade-off" holding between the particular components of the models of grammars discussed in this paper. Thus if a grammar has a deep structure and its interpreting semantic component, as is the case with EST, then the transformational component is automatically weakened as it performs fewer operations. However, if, as the adherents of GS assume, a grammar has a semantic representation and no deep structure, then the transformational component must be powerful enough to be able to cope with the logical form of sentences and the lexicon must contain a great number of decomposed lexical formatives.

5. ASSESSMENT OF BOTH MODELS

1.0. We can provide now an overall assessment of the two models.

2.0. It seems that GS has a clear advantage over EST in that the semantic representation in GS assumes a logical form. For, if all people are claimed to have the same sense of logic, then it is only one step to assert that all ethnic languages share the semantic representation.

2.1. GS allows for the establishment of the relations between reality and a native speaker's language, a move which is not possible in the case of IS as the analyses pursued in this model are strictly sentence-type analyses.

2.2. Because in GS words and word processes are claimed to be morphologically complex, in this model of grammar restrictions can be stated blocking the derivation of non-words.

2.3. GS introduces a new typology of languages based on the order of sentence elements in the sentence's semantic representation. According to GS, languages are either of the type VSO, SOV or SVO.

2.4. GS allows for the establishment of direct relations between utterances of natural languages and their equivalents in the language of logic.

2.5. Finally, GS is simpler than EST in that GS contains one type of rules, i.e. transformations that link the semantic representation and the surface structure. In contrast, IS has two types of rules: transformations and semantic interpretive rules.

2.6. Yet, GS is not entirely immune to criticism. The very fact that in this theory the semantic representation takes the form of "syntax-like" trees raises doubts whether the choice of this notation is not somewhat arbitrary.

2.7. Secondly, if, as Katz and Bever claim, a grammar is "extended" to incorporate extralinguistic phenomena and concepts such as, for example, truth conditions, there is a distinct possibility that, indeed, such a model may become a "theory of everything." Luckily, there is no indication at this moment that this is going to happen in the nearest future.

Bibliography

1. Chomsky, Noam (1965) *Aspects of the Theory of Syntax*. Cambridge (Mass.): MIT Press.

2. Chomsky, Noam (1972) *Studies on Semantics in Generative Grammar*. The Hague: Mouton.

3. Chomsky, Noam (1973) "Conditions on Transformations." In *A Festschrift for Morri Halle*, eds. Stephen Anderson and Paul Kiparsky, 232-286. New York: Holt and Co.

4. Fillmore, Charles J. and D. Terence Langendoen, eds. (1971) *Studies in Linguistics Semantics*. New York: Holt and Co.

5. Freidin, Robert (1973) *On the Analysis of Passives*. Bloomington (Indiana): Indiana University Linguistic Club.

6. Katz, Jerrold J. (1972) *Semantic Theory*. New York: Harper and Row.

7. Katz, Jerrold J. and Paul Martin Postal (1964) *An Integrated Theory of Linguistic Descriptions*. Cambridge (Mass.): MIT Press.

8. Katz, Jerrold J. and Thomas Bever (1974) *The Fall and Rise of Empiricism or the Truth about Generative Semantics*. Bloomington (Indiana): Indiana University Linguistic Club.

9. Kimball, John, ed. (1972) *Syntax and Semantics*, vol. I. New York: Seminar Press.

10. Kiparsky, Paul and Carol Kiparsky (1970) "Fact." In *Progress in Linguistics*, Manfred Bierwisch and Karl Erich Heidolph (eds.), 143-173. The Hague: Mouton.

11. Lakoff, George (1971) "On Generative Semantics." In Steinberg & Jakobovits (1971), 232-296.

12. Lakoff, George (1972) "Linguistics and Natural Logic." In *Semantics of Natural Language*, eds. Donald Davidson and Gilbert Herman, 545-665. Dordrecht: Reidel.

13. Lakoff, George (1973) "Some Thoughts on Transderivational Constraints." In *Issues in Linguistics*, Braj B. Kachru *et al.* (eds.), 442-453. Urbana: University of Illinois Press.

14. Lakoff, George and John R. Ross (1967) *Is Deep Structure Necessary?* Bloomington (Indiana): Indiana University Linguistic Club.

15. McCawley, James D. (1968) "The Role of Semantics in a Grammar." In *Universals in Linguistic Theory*, Emmon Bach and Robert T. Harms (eds.), 124-169. New York: Holt and Co.

16. McCawley, James D. (1970a) "English as a VSO Language." *Language* XLVI: 286-299.

17. McCawley, James D. (1970b) "Semantic Representation." In *Cognition: A Multiple View*, Paul L. Garvin (ed.), 227-247. New York: Spartan Books.

18. McCawley, James D. (1971) "Time and Tense Reference in English." In Fillmore & Langendoen 1971: 97-114.

19. McCawley, James D. (1972) "A Program for Logic." In *Semantics of Natural Language*, eds. Donald Davidson and Gilbert Herman, 498-544. Dordrecht: Reidel.

20. McCawley, James D. (1973) Rec. Chomsky (1972). Bloomington (Indiana): Indiana University Linguistic Club.

21. McCawley, James D. (1974) "Syntactic and Logical Arguments for Semantic Structures." In *Three Dimensions of Linguistic Theory*, Osamu Fujimura (ed.), 261-376. Tokyo: TEC.

22. Maclay, Howard (1971) "Overview." In Steinberg & Jakobovits (1971), 157-182.

23. Postal, Paul Martin (1970) "On the Surface Verb Remind." *Linguistic Inquiry* I: 37-120.

24. Postal, Paul Martin (1971) *Cross-over Phenomena*. New York: Holt and Co

25. Postal, Paul Martin (1972) "The Best Theory." In *Goals of Linguistics Theory*, ed. Stanley Peters, 131-170. Englewood Cliffs: Prentice-Hall.

26. Postal, Paul Martin (1974) *On Raising: One Rule of English Grammar and Its Theoretical Implications*. Cambridge (Mass.): MIT Press.

27. Ross, John R. (1967) *Constraints on Variables in Syntax*. Bloomington (Indiana): Indiana University Linguistic Club.

28. Seuren, Pieter A. M., ed. (1974) *Semantic Syntax*. Oxford: Oxford University Press.

29. Steinberg, Danny D. and Leon A. Jakobovits, eds. (1971) *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*. Cambridge: Cambridge University Press.