The Complexity of Semantic Components in Linguistic Era

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Abstract

In Section One, a brief account is made to describe how a semantic theory explains and shows the interpretative ability of speakers. Any lexical item in a given sentence is supplied with more senses, by a dictionary, than it can bear. The task of the projection rules is to select the most suitable sense of each item in that sentence. The semantic components discussed according to the phonological and semantic representation of sentence which is the basic concern of Section Two, are associated with a linguistic description of a natural language proposed the specification of the interconnections between the three components: syntax, phonology and semantics to be of mutual dependency. Section Three advocates another split from the Standard Theory which is called Generative Semantics: a theory developed by Lackoff, McCawley, Ross and others has found its way since 1968 as a strong opponent to the Extended Theory. We also, in Section Four discuss the semantic acceptability in linguistics through drawing a distinction between grammaticality (a property belonging to a competence) and acceptability (a property identical in performance).

Introduction: The Appearance of Semantic Phenomena

Semantics is a major branch of linguistics devoted to the study of meaning in language the term is also used in philosophy and logic but not with the same range of meaning or emphasis as in linguistics. Philosophical semantics studies the relations linguistic expressions and the phenomena in the world to which they refer, and considers the conditions under which such expressions can be said to be true or false, and the factors which affect the interpretation of language as used. Its history of study reaches back to the writings of Plato and Aristotle. In recent years semantics includes the work of such philosophers and logicians as Charles Peirce (1839-1914), Rudolf Carnap (1891-1970), specially under the heading of semiotics and the philosophy of language (Crystal: 1987).

In linguistics, the emphasis is on the study of the semantic properties of natural languages and often employed to make the

distinction clear. The 'behaviourists' semantics of Leonard Bloomfield, for example, refers to the application of the techniques of the behaviourist movement in psychology, restricting the study of meaning to only observable and measurable behaviour, because of the pessimism of this approach, yet it was just a step towards more serious and useful study. In the late fifties, the notion of semantics as an important component within linguistic science was hardly accepted especially to some linguists who were influenced by Bloomfield's ideas. The structural semantics displays the application of the principles of structural linguistics to the study of meaning through the notion of semantic relations (sense or meaning relations such as 'synonymy' and 'antonymy'). Semantic meaning may be used here with the grammatical meaning. However, the revolution in linguistics that was inaugurated by Chomsky's 'syntactic structure' (1957) had a great impact on linguistics as a science but underestimated the value, or even avoided discussing semantics as integral part in that science.

It was not until the publishing of Katz and Foder's 'The Structure of a Semantic Theory' (1963) that semantics had started to receive attention, and the it has been taking more and more position in linguistic theory. This article was followed by KAtz and Postal's integrated theory (1964). Then appeared Chomsky's Aspects of the Theory of syntax (1965) in which he stretched his theory to give semantics its right place side by side with syntax and phonology (Smith: 1980).

Section One: Semantic Field Theory

Semantic field theory is an approach which developed in the 1930s; it took the view that the vocabulary of a language is not simply a listing of independent items (as the head words in a dictionary would. suggest), but is organised into areas or fields, within which words interrlate and define each other in various ways. The words denoting colour are often cited as an example of a semantic field. Other areas of semantics include the diachronic study of word meanings (etymology) the synchronic analysis of word usage (lexicology) and the complication of dictionaries (lexicography) (Crystal: 1987).

This doesn't mean that semantics, in the sense of study of the meaning, is a modern invention, for the subject of meaning is as old as the word itself; but the recent development in semantics is the one that gives the subject matter its real prestige as a significant factor in linguistics, and therefore to be studied scientifically. However, it is the claim of interest by various disciplines that makes semantics a difficult to understand and undertake. Anthropology, Psychology, Philosophy and Linguistics, all consider semantics as part of their own different fields, and it should remain under the dominion of their different rules (Smith: 1980).

Undoubtedly, nobody would deny, except philosophers and psychologists, that the study of meaning is the prime concern of such disciplines as linguistics rather than philosophy or psychology, although these disciplines have to search for their own materials in that domain. The recognition of a semantic component as an essential part in forming the final integrated shape of a sentence in the later theories, transferred this subject from its traditional place as secondary to syntax and phonology into a much more advanced level to such an extent that in recent years there have been more books published about it than in all the previous years of the present century.

Katz and Foder, in fact, were looking for a solution to the problem of "what form should a semantic theory of a natural language take to accommodate in the most revealing way the facts about the semantics structure of that language supplied by descriptive research?" A native speaker of a natural language, they say, is able to use fluently, and understand any of the infinitive sat of sentences in his language while he has been confronted by only a finite set of them. This claim leads one to suppose that there are rules which project the finite set of his language. The form of rules which regulate this process is referred to as the projection rules (Leech: 1971).

Any lexical item in a given sentence is supplied with more senses by a dictionary, than it can bear. Thus, the task of the projection rules is to select the most suitable sense of each item in that sentence. Therefore, the semantic interpretations which answer to the speaker's ability to understand sentences must mark each ambiguity; explain how a speaker detects anomalies; and finally relate the paraphrase of sentences to each other. This is how a semantic theory describes and explains the interpretative ability of speakers. Let's illustrate it in this diagram to make it clear:

INPUT SENTENCES

DICTIONARY COMPONENT

SEMANTIC THEORY

PROJECTION RULES

OUTPUT SENTENCE
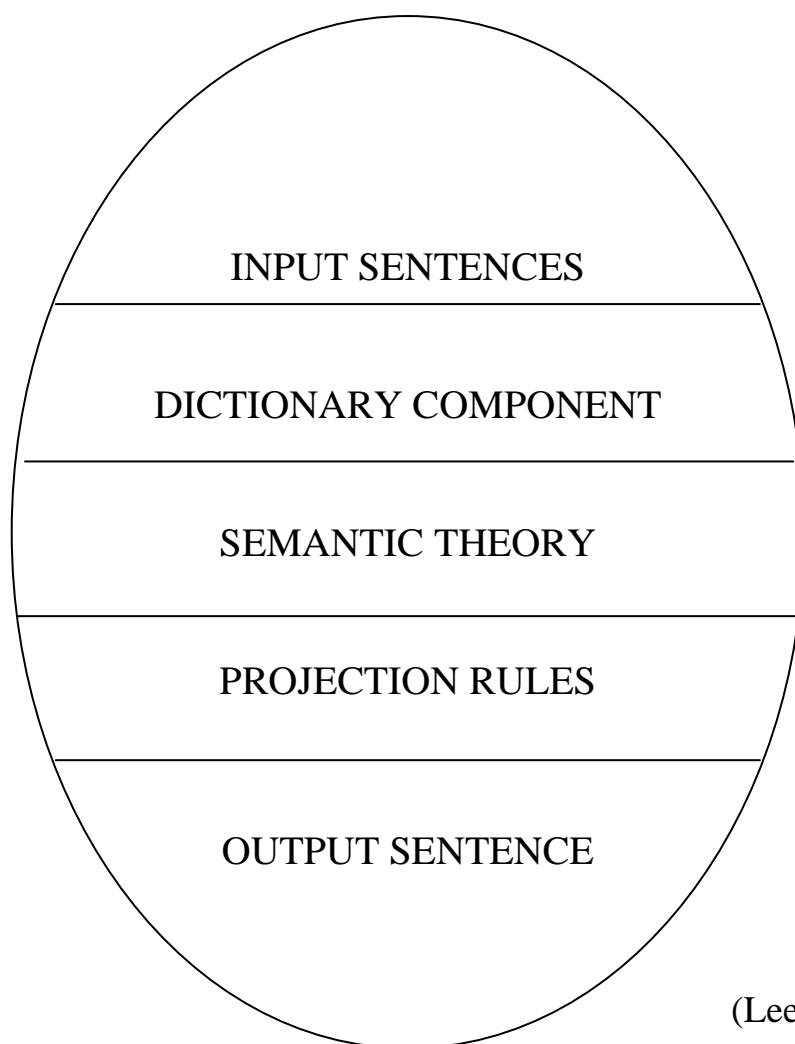
(Leech: 1974)

In general, the work of the projection rule component can be represented by a constituent structure tree, proceeding from bottom of the circle to top, and effecting a series of amalgamations. Distinguishers, semantic markers, and grammatical markers are assigned to each lexical item in a dictionary entry. The distinguishers are intended to reflect what is idiosyncratic about the meaning of that item. On the other hand, the semantic markers are intended to reflect whatever systematic relations hold between that item and the rest of the vocabulary of the language. Hence, the projection rule component proceeds by amalgamating sets of paths dominated by a grammatical marker, and accordingly assigning a set of readings to the linked series of lexical items, until it reaches the highest marker, i.e., sentence, which is to be associated with a semantic
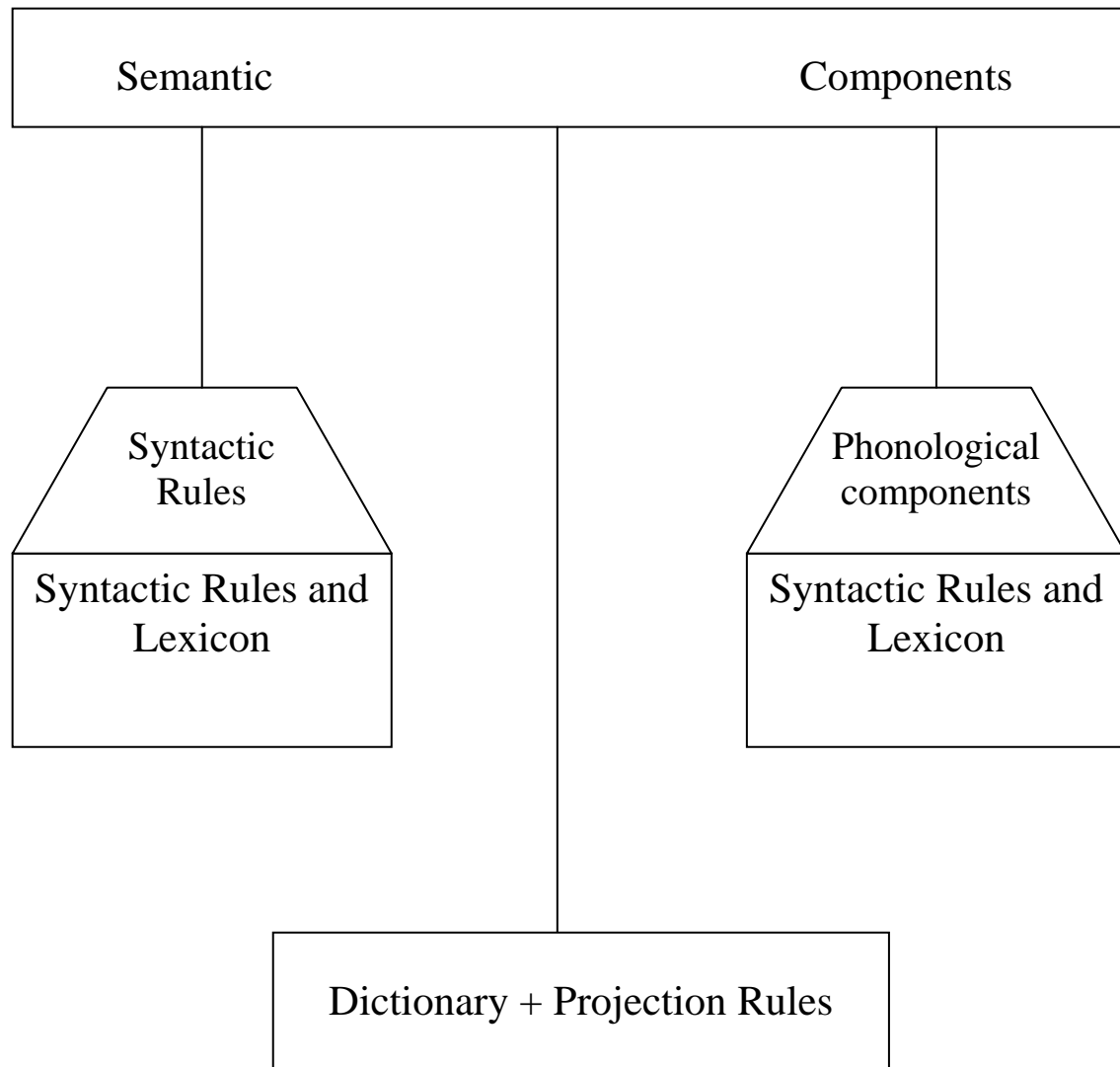
interpretation.

Section Two: Semantic Components

The degree of semantic ambiguity of a constituent depends on the number of readings allotted to it: with no readings it is anomalous, with one is ambiguous and with two or more is ambiguous. Obviously Katz and Foder's theory has stimulated others to take semantics seriously. In 'Syntactic Structure' (1957), for instance, Chomsky, as it has been mentioned before, avoided if not ignored the semantic component and did not give it the importance the other two, syntax and phonology had.

But the later in the 'Aspects" (1965) he revised his attitude to consider the semantic component as an integral part of any theory in linguistics. As a consequence of the new era of semantic study, after it was granted admission to be within the region of linguistic science researches turned to explore the relation between syntax and semantics to solve the problem of 'which effect which' in a certain stage of utterance production. The argument was whether surface structure or deep structure is the one responsible for the semantic interpretation of a sentence. While it was held (Katz and Foder: 1972) that surface syntactic structures might be the input to the projection rules of the semantic component, this attitude was superseded by Katz and Postal's argument in 'An Integrated Theory of Linguistic Description' (1964) that it is deep syntactic structure which is semantically interpreted, or as they put it 'The Semantic Component operated exclusively on the underlying P-markers of the sentences.
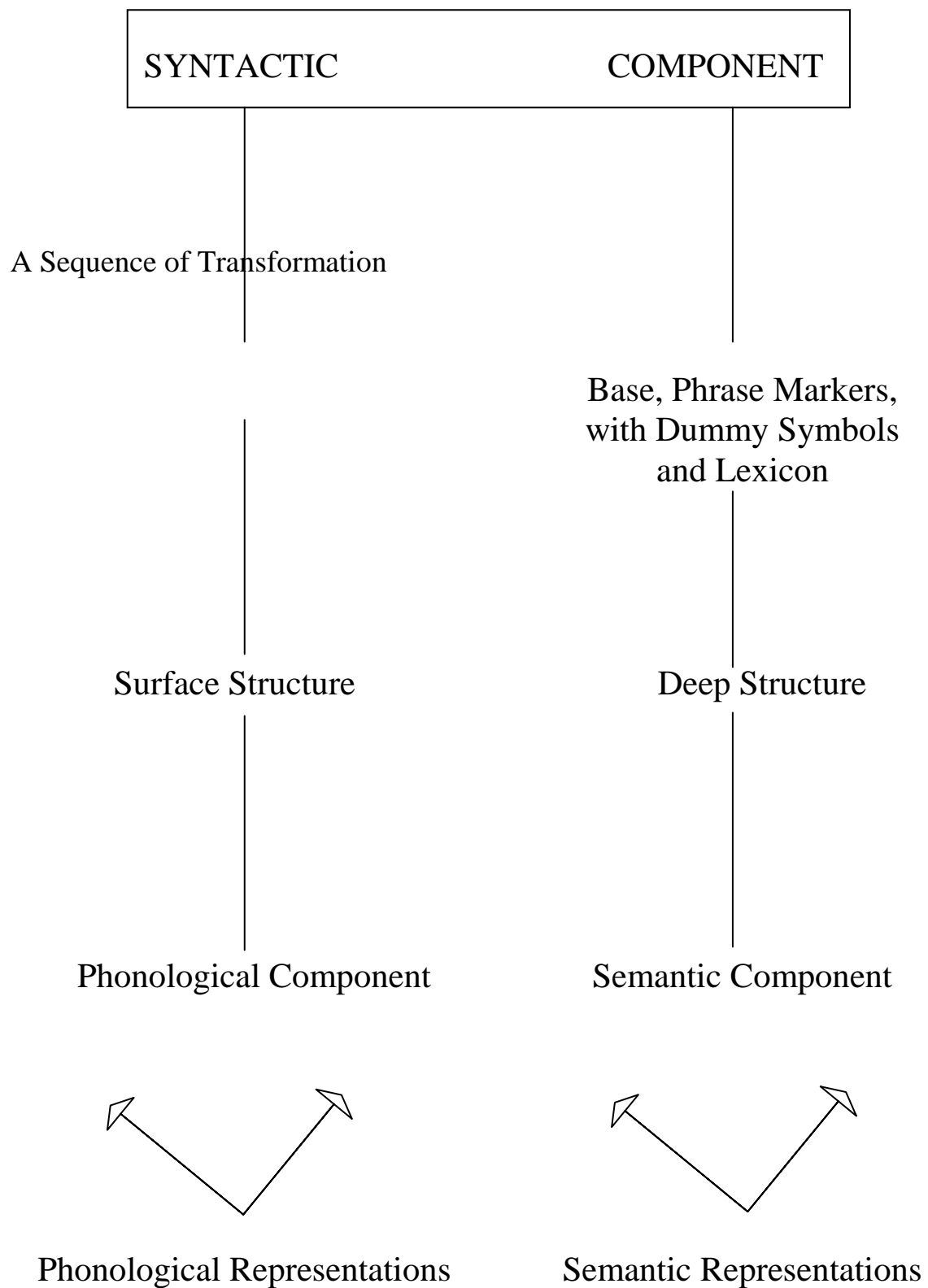
Palmer (1976), on the other hand, accepted that all linguistic components are equally important and in order to provide a 'Linguistic description of a natural language' proposed the specification of the interconnections between the three components, syntax, phonology, and semantics to be of mutual dependency as it is illustrated in the following

diagram:

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┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│       Semantic                      Components                     │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
         │                                      │
         │                                      │
    ┌────┴─────┐                          ┌─────┴──────┐
   /            \                        /              \
  /   Syntactic  \                      /  Phonological  \
 /     Rules      \                    /    components    \
┌──────────────────┐                  ┌──────────────────┐
│ Syntactic Rules  │                  │ Syntactic Rules  │
│   and Lexicon    │                  │   and Lexicon    │
│                  │                  │                  │
└──────────────────┘                  └──────────────────┘
                    │
           ┌────────┴──────────────────┐
           │ Dictionary + Projection   │
           │          Rules            │
           └───────────────────────────┘
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Phonological and Semantic Representation of Sentence

The study of such matters placed Semantics on strong ground to become as widespread as the other components, and with it a linguistic theory would be more integrated and convincing. Again, Chomsky in the 'Aspects' moved away from his 'Syntactic Structure' by extending transformational grammar to include not only syntactic rules for generating the sentences of a language but also semantic rules for assigning meanings to these sentences. He proposed that syntactic component generates both Deep and Surface Structure for every sentence in a language. Accordingly, the deep structure is the output of the base rules of the syntactic component, and at the same time the input to the semantic component. On the other hand, the surface, structure is the output of the transformational rules, and the input to the phonological component. Clearly, Chomsky argued that syntactic component is the input for both semantic and phonological components, which are merely interpretative factors. To illustrate what has been said, we suggest a certain diagram on page (8):-

SYNTACTIC	COMPONENT

A Sequence of Transformation

Base, Phrase Markers,
with Dummy Symbols
and Lexicon

Surface Structure   Deep Structure

Phonological Component   Semantic Component

Phonological Representations   Semantic Representations

This conception of grammar is called by Chomsky as 'Standard Theory' in which the deep structure completely determines the semantic representation of the sentence. But after a few publications had appeared some years later inadequacies showed themselves in this theory, and the attempts to overcome these problems took two directions. The first is called 'The Extended Standard Theory' which agreed with most of what had been given except proposing some revisions and extensions. With regard to the claim that deep structure need be input, to the semantic component, the Extended Theory (Chomsky: 1968) extended its range to include surface structure as another in determining the semantic interpretation Further more, it is agreed that grammatical relations of the deep structure play a role in determining meaning, "but such. Matters as scope of logical elements and quantifiers, conference, focus and certain other properties, are determined by rules that take phonetically interpreted surface structure into account" (Leech: 1971).

Section Three: Generative Semantics

Generative Semantics is another split from 'The Standard Theory', a theory developed by Lackoff, McCawley, Ross, and others has found its way since 1968 as a strong opponent to the Extended Theory. However, in spite of the various positions taken by its advocates, it could be seen that the most important difference between this theory and the extended Standard Theory is the ordering of lexical and non lexical insertion. In the Extended Theory, it is assumed that non lexical transformations so that the notion of deep structure is well-formed. Another point of divergence is that in Generative Semantics deep structure of a sentence is 'deepened' to the extent of being identical with its semantic representation. Moreover, the base component of Chomsky ceased to be syntactic but semantic. Consequently, the projection rules are no longer needed to provide an interpretation of deep structure since

the deep structure itself is the semantic interpretation. Again, the best way to show that is by drawing another diagram suggested by Leech (1971):

| Semantic Representation (DS) |
Transformational Rules
| Surface Structure (S.S) |
Phonological Rules

Phonetic Interpretation
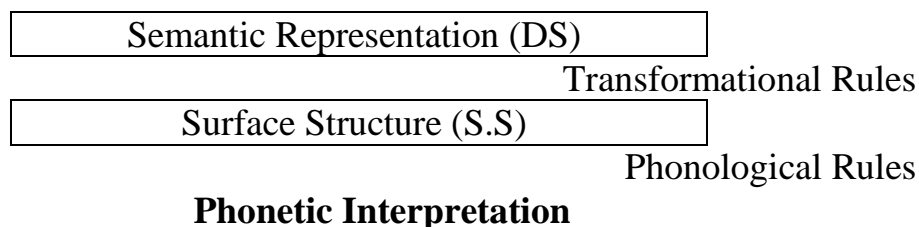
The assumed distinction between this theory and the other theories in semantics is a difference in generation and interpretation. While the Interpretive Semantics holds that the representation of a sentence is derived from a syntactic base, i.e., the derived components interpret thee output of the base component, the generative semantics claims that it is the surface syntactic representation which is derived from a semantic base.

Section Four: The Semantic Acceptability in Linguistics

Without much difficulty, one can, at one extreme, stigmatize Chomsky's famous example sentence "Colourless green ideas sleep furiously" as semantically unacceptable; whereas more difficulty is encountered with Mark Twain's equally famous statement: "The reports of my death have been greatly exaggerated".

Meaningful but acceptable utterances include innumerable asser-tions invariably false for factual rather than reasons. Examples are: "Cows can't fly", "She sat on her head". To demonstrate the ludicrous character of these sentences, one would give lesson in zoology, anatomy, criminal law…etc. rather than point to inherent incompatibilities of meaning (Leech: 1971).

The difficulty is that when utterances like these occur we cannot, without further investigation, decide whether the speaker is breaking a sense-relation rule of the language or a reference -relations rule (Quirk &

Svartrik: 1966).

Acceptability and meaningfulness are distinct, but related concepts" (Leech, 1971: P.13). The task of relating meaningfulness or grammaticality to acceptability, as they are open to systematic study, should not be so difficult as Chomsky and others have assumed. Chomsky has drawn a distinction between grammaticality (a property belonging to competence) and acceptability (a property identical in performance). Identifying an assertion as a contradiction enables one to predict, with some accuracy, its communicative effect in given situations.

Grammaticality is that part of the acceptability of utterances which can be accounted for in terms of the rules of formation and transformation specifying the permissible combinations of the distribution all classes of elements in sentences(Lyons: 1968). From the formal point of view, grammaticality is nothing more than acceptability to the extent that this can be brought within the scope of a particular classification of the lexical and grammatical elements in the language". There are many combinations of words which all linguists will characterize immediately not only as unacceptable, but also as ungrammatical (without necessarily producing a set of grammatical rules). One can say that their immediate reaction is based on an 'intuitive' awareness of the grammatical structure of Standard English" (Lyons, 1968: P.154).

Conclusion

We have clearly noticed how the subject matter of SEMANTICS that is to construct a scientific theory to deal with the problems and complexity of producing and understanding of expressions and ideas has not yet reached a satisfactory answer. In spite of all what has been said and written in recent years, and the rapid development of SEMANTICS as a science, within thee linguistic era, there are still more issues and

points to discuss, analyse, and to find them reasonable solutions.

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