

BINDING THEORY

By: Muhsin Ali Shreeb

Introduction

Over the history of applied linguistics ,different theories of learning have been proposed to account for how grammar is learned .During the middle of the previous century ,for instance ,grammar learning was though to take place through a process of verbal habit formation .

In 1986 Chomsky made a new idea to emerge ,that is, the universality of grammar .Chomsky poisted that children are born with an understanding of the way languages work ,which was referred to as Universal Grammar.

Universal Grammar (UG)is a complex theory which involves abstract and complicated sub-theories . UG is concerned with internal structure of the human mind .

It is ,thus , psychologically oriented. This theory holds that the speaker knows a set of principles that apply to all languages .According to this theory the speaker knows as well a lot of parameters that vary within clearly defined limits from one language to another . This theory holds that acquiring language means learning how these principles apply to a particular language and which value is suitable for each parameter .

This term paper tries to shed light on a small part of Chomsky's Universal Grammar ,i.e. Binding Theory. Binding Theory ,unlike Chomsky's other models ,does not rely on rules pre se ,but rather on principles .

It is because ,according to UG ,knowledge of language dose not consist of rules as such but of underlying principles from which individual rules are derived.

In general ,Binding Theory accounts for relations among anaphors (like :himself),pronominals (like him), and referring expressions (like John)and their possible antecedents in sentences .

Chomsky

Chomsky was born on 7 December 1928. from the age of two he spent ten years in a progressive Deweyite school in Philadelphia ,After finishing high school he attended the University of Pennsylvania where he met Zellig Harris ,a leading linguist and political theorist ,who had a profound influence on his life.

He graduated in 1949 and after two years (1951) he became one of the Society of Fellows at Harvard ,from where he moved to the Massachusetts Institute of Technology in 1955.

He has been there ever since ,although a large part of each year is devoted to traveling around the world giving countless lectures and interviews .

Chomsky's output is vast :he has published about seventy-five books ,hundred's of articles ,and written tens of thousands of letters(Smith, 1999:4).

Chomsky's position is not only unique within linguistics at the present time ,but is probably unprecedented in the whole history of the subject .His first book ,syntactic structure ,published in 1957, short and relatively non-technical though it was ,revolutionized the scientific study of language (longs ,1973:9). Syntactic structure was a threat to the structuralist's domination over the field of linguistic when it appeared on the scene .

Because of the publication of this book and Chomsky's and Chomsky's other book called aspects of the theory of syntax (1965), by 1970 transformational generative grammar had become the established linguistic theory (Farrokhpey, 1999:67).

By any criterion Chomsky's achievement is vast. As the guiding spirit of the cognitive revolution, he has been instrumental in changing our view not just of language but of human nature .

By contrast ,there are areas such as the evolution of language that ,because of the impossibility of getting relative evidence ,seem to be mysteries .

That language is the result of evolution seems to be undeniable ; that we can say anything interesting about how it evolved seems dubious .

The development of grammar

About 1630 , the German philosopher Alsted first used the term general grammar as distinct from special grammar. He believed that the function of a general grammar was to reveal those features which relate to the method and etiology of grammatical concepts.

They are common to all languages .Pointing out that general grammar is the pattern 'norma' of every particular grammar.

Three and half centuries before Alsted ,the scholar Robert Kildwardby held that linguists should be concerned with discovering the nature of language in general. Kildwardby was so concerned with universal grammar that he excluded consideration of the characteristics of particular languages ,which he believed to be as irrelevant to a science of grammar .Kildwardby was perhaps too much of a universalist (Fromkin et al. ,2003:19).

A short brief history of the approaches to the grammars in the past may help to understand the new and recent concerns in the theory of language (i.e. grammars).

Trends of grammar

1-The traditional grammars

Traditional grammars have been in use since five centuries B.C and have played a significant role in the appearance of modern linguistic theories such as Government and Binding(GB) and Universal Grammar (UG).

Traditional grammars are generally based on four bases :

- a- The Ancient Greeks.
- b- The Romans .
- c- The Modistae [Medieval Linguistic period].
- d- The General Grammars [speculative grammars].

A brief glance will be given on each one

A-The Ancient Greeks

For the ancient Greeks of the fifth century before Christ ,grammar was part of philosophy . That is to say ,grammar was a part of the scholar's research about the nature of the world around them.

It was Stoics (fourth century B.C),among all Greek philosopher ,who gave the most attention to language .The use precise technical terminology to discuss language. One of the most fundamental distinctions they made was that between form and meaning ,the signifier and the signified respectively . They distinguished nouns, verbs ,conjunctions and articles .They also develop inflection ,i.e. ,they relationship between such forms as (pen ,pens)or (drink ,drank ,drunk).

B- The Romans

The most famous Roman scholars were Donatus (fourth century A.D)and Priscian (sixth century A.D). These authors constructed Latin grammars on the Greek models.

C- The Modistae

The linguists in the middle ages were called modistae .Great advances were made in the grammatical analysis of Latin by these medieval scholars and have become part of what we think of as traditional grammar.

D- General Grammars (or Speculative Grammars)

General Grammars of 17th and 18th centuries claimed that the structure of various languages ,and especially Latin ,embodies universally valid laws of logic.

The general grammarians tried to discover the principles through which the word as a sign was related on the one hand to the human intellect and on the other hand to the thing it represented , or signified .It was assumed that those principles were constant and universal . These grammars tried to deal with features found in any human language , not in one particular language . They were after universals ,common features of human language . Such a grammars

discussed the general features of the things with which human language deals ,as well as the way these features are expressed in Latin. They claimed that all languages have the same parts of speech and other general grammatical Categories.

Bloomfield and his followers established a school of

linguistics called structuralism ,which gave up the traditional style of imposing Latin grammars on other languages under their study . Structuralists tried to study language by certain educative operations called segmentation and classification ,in other words , structuralists claimed that language is a structure with levels (or layers)and inter-related parts .

Structuralists had as their aims :

a-To describe the current spoken language (they ignored the written form of language);

b- To limit their area of study to the form of language ,i.e. ,phonology and morphology ; and

c- To carry out this description by means of systematic and rigorous procedure called discovery procedures.

Empiricism

During the period when Bloomfield was writing his book called language (1933), an empirical approach to psychology ,called behaviorism was being developed by J.B. Watson . Bloomfield became acquainted with its promise and accomplishments .Bloomfield adopted the behavioristic psychology as one of the ways of stating meaning .

Bloomfield in his mechanistic approach to the issue of meaning strongly believed that the only useful generation about language are inductive generalization .

According to the behavioristic attitude of empiricists [i.e. structuralists], certain general principles of learning that are common to all organisms are enough to account for the cognitive structure which humans acquire . These general laws governing learning , are reinforcement ,frequency and contiguity of occurrence ,which can explain verbal response , the innate abilities required are relatively simple ones such as the ability to form associations between stimulus and response .So the empiricist believes that no linguistic structure is innate ; such a structure has to be learned .

Rationalism

A rather different approach to the problem of acquisition of knowledge has been that of the rationalists (or nativists). According to them, man's capacity for language is a specialized component of his biological make-up. In other words, the structure of language is to a considerable degree specified biologically. The child is seen as coming to the language learning task equipped with much inborn knowledge of language structure.

According to Chomsky the child is born with same Language Acquisition Device (LAD) which provides an abstract specification of the range of possible and impossible roles and structure in natural language. With the help of this inborn faculty (LAD) the child is able to account for the grammaticality and ungrammaticality of certain sentences and rules he is faced with.

Chomsky insisted that the structure dependency principle, which specifies that all grammatical rules are structure dependent, is part of the innate system of biologically between principle of Universal Grammar which constitute the human language faculty.

Thus according to Chomsky we should expect that all languages will share certain universal properties in common. These certain universal properties is governed by what Chomsky calls Universal Grammar (Falk, 1978:4-11; Farrokhpour, 1999:a,b; Schmitt, 2002:6).

The Theory of Universal Grammar

Chomsky describes language as a property of the human mind. He has said of this property: "Universal Grammar (UG) is the system of principles, conditions and rules that are elements of or properties of all human languages (Farrokhpour, 1999b:203)."

All human beings share part of their knowledge of language no matter which language they speak. Universal Grammar with the common inheritance. Universal Grammar is concerned with the internal structure of the human mind. According to UG theory, the speaker (of any language) knows a set of principles that apply to all language.

The theory of Universal Grammar also holds that the speaker knows parameters that vary in different languages.

Acquiring language means how these principles apply to a particular language and which value is appropriate for each parameter.

Some principles of Universal

Grammar:

some principles of Universal grammar will be presented to see how Universal Grammar works:

1-Structure-Dependency:

According to this principle ,structure dependency means“ the knowledge of language relies on the structural relationship in the sentence rather than on the sequence of words (Cook et al. ,1996:4).”In other words a sentence can not be analyzed as having a certain hierarchical structure.

Example : He will come back.

This simple sentence is not a sequence of four words :He, will, come and back. Rather each of this sentence is structure dependent ,that is ,each word belongs to a structure or category .

2-The Head parameter

Head parameter specifies the order of elements in language .

Although all languages have the feature of structural dependency ,but they may differ in the placement of the head within each phrase .some languages have the head on the left of the complement (English),other have it on the right on the complement (Japanese)(Cook ,et. al. ,1996:14).

3-The projection principle

This principles states that “ properties of lexical items should remain constant throughout the derivation (Radford ,2004:473).”

4-Category selection (C-selection)

The lexical item restricts the semantic kind of its arguments . So according to this principle the lexical entry selects possible complements that may go with it (Cook et al. ,1996:164).

The Subtheories of Universal Grammar

Chomsky postulates a set of subcategories which interact with one another .Each one of these subcategories deals with some central area of grammatical enquiry ,besides each of these theories (or subtheories)comprises a principle or sets of principles .

The subtheories of Universal Grammar are the following :

1-X-bar theory.

2-Theta theory .

3-Case theory .

4-Bounding theory.

5-Government theory.

6- Binding theory.

The last sub theory of this list ,i.e. Binding theory will be the main concern of this term paper and it will be studied in detail.

Binding Theory:

Binding Theories tries to state whether expression in the sentence may refer to same entities as other expressions or refer to some entities outside the sentence .In other words Binding Theory deals with the expressing of the relationships among the categories of NP in a sentence .

Word Classes Involved in Binding Theory :

Three classes of words are involved in Binding Theory

1-Reffering Expressions

Any noun such as John ,Ahmad ,is classed as referring expression .This person is not otherwise mention overtly ,i.e. its reference is necessarily to something in world outside the sentence .

2-Pronominals

Words such as him ,her .. etc. belong to the class of pronominals.

3-Anophors

Anaphors may be

a-Reflexives (e.g. himself ,herself ...)

b-Reciprocal (e.g. each other ...).

So Binding theory is basically concerned with showing how pronouns and other types of noun relate to each other but is extends the antecedent /pronoun relationship to other categories in a rigorous fashion.

Types of relationship may exist between the categories of a sentence .Using examples will illustrate those types of relationship .

(1)John saw him in the mirror

First of all the reflexive and its antecedent ,(The NP on which a reflexive is dependent for its interpretation is the antecedent of the reflexive),must agree with respect to the nominal features of person ,gender ,and number .Lack of agreement leads to ungrammaticality as in (2).

(2)*Jack hurt herself .

Going back to (1) we find that there is some entity to which John may be used to refer . so John is a referring expression (r- expression).This person (John)is not otherwise mentioned overtly .To know who is being talked about means knowing which person called (John)is referred to from other information than that contained in the sentence .The same applies to him ,known as a

pronominal , another person is being talked about who is not mentioned .So it is clear that John and him do not refer to the same person .

Take another example :

(3) John saw himself in the mirror

While John ,as before ,refers to someone outside the sentence, himself refers to the same person as John.

This information obtained not from knowing who John is but from knowing the syntactic relationship between John and himself ,that is ,from the internal structure of the sentence .so John and himself corefer to the same entity , thus they are assigned the same index (i) i.e. co-index .

(4) John saw himself in the mirror

Here part of Chomsky's Binding Theory can be inferred that is "if an expression is in a certain structural relationship to another and is co-indexed with it ,it is bound to it (Cook ,1996:62). "

In the preceding examples himself is bound to John and has the same index ;him is not bound John and has a different index.

In (1), (3) ,and(4) three word-classes are mentioned :referring expressions ,anaphors and pronominals . Noun such as John are classed as referring expressions in that their reference is necessarily to something in the discourse outside the sentence rather than to some other element in the sentence .Anaphors such as himself ,made up of subgroups such as reflexives ,however ,always have antecedents in the sentence rather than outside it . pronominals ,such as him do not have antecedents that are nouns within the same clause .

This analysis goes another way when faced with more complex data, such as : (5)John said that pat saw himself in the mirror .

Here himself does not refer to the same person as John although it is in the same sentence .From this ,it is concluded that the important category seems to be the clause rather than the sentence ;Anaphors such as himself is bound to an NP within the same clause ,this can be made clear when square brackets are used in the examples :

(6)John said [that pat saw himself in the mirror].

Put it another way it can be said : Anaphors such as himself must have antecedents within their own clause ; they are bound inside it .

Pronominals are the opposite in that they must not have an antecedent within the same clause .Thus in a sentence such as :

(7)John said that Pat saw him in the mirror.

Two possible interpretations can be obtained ,i.e. :

(8) John said [that Pat saw him in the mirror].

In this sentence him is bound to John in the main clause .

In the other some third Party altogether is involved .

(9) John said [that Pat saw him in the mirror].

But him can not have Pat ,the subject of its own clause ,as antecedent .So it can be concluded that pronominals can either have an antecedent within another clause in the same complex sentence or refer outside the sentence altogether ;In this case it can be said that pronominals are free within their own clause since their reference must always go outside it.

From what is mentioned ,three principles of the Binding Theory can now be summed up to show the difference between anaphors ,pronominals and referring expressions :

A-Anaphors are bound within the clause .

B-Pronominals are free within the clause .

C-referring expressions always free.

Domains

The three principles mentioned for the Binding Theory need additional information ,look at the sentence:

(10) John said he saw himself in the mirror

By principle A the anaphor himself is bound to he within the embedded clause.

(11) John said [he saw himself in the mirror].

By principles B the pronominal he is free within its clause and so may co-refer with John outside the embedded clause or may refer to someone else not mentioned .

(12) John said[he saw himself in the mirror].

or

(13) John said he saw himself in the mirror .

According to this case the speaker must know not only the syntactic category to which the words belong but also the relevant local domain ,(a binding domain is the clause that contains the anaphor(

The reason why ' the local domain' is needed additional explanation can be put. consider the following example :

(14) John saw that himself was reflected in the mirror.

What we notice about (14)is that the antecedent is outside the clause ,i.e. himself is bound to John which is outside the embedded clause. Clearly principle A needs a revision to include the notion of local domain i.e. to include a logicity constraint (a rule that involves nearness).

The three principles of the Binding Theory must become as follow:

A-An anaphor must be bound by it's antecedent within it's binding local domain.

B-A pronoun must be free in its binding local domain .

C-An R-expression must be free.(wikibooks ,2010:1-6 ;sells ,1985:70)

Binding Theory and UG:

It is mentioned earlier in this term paper that UG is not concerned with information specific to one language.

One approve is the principle of the Binding Theory .These principles are couched at a level of abstraction that may be used for any human language .Though we may find some differences with the actual sentences of Chinese ,Russian ,Arabic ,Chomsky insists that the differences are in the ways languages use these principles but in the principles themselves .

(15)Huda re?et nafsaha: fi: almir?a:t .

Huda saw herself in the mirror.

In (15) the anaphor nafsaha: is bound to its antecedent huda .

another example

(16) qa:lat Fatima inna Huda re?et nafsaha: fi: almir?a:t.

Fatima said that Huda saw herself in the mirror.

In (16)the anaphor nafsaha: is bound to Huda ,(it antecedent in the same local domain),not to Fatima.

Another example

(17)qa:lat Fatima hiye re?et nafsaha: fi: almir?a:t

In (17)the pronominal may bound to Fatima ,an antecedent outside the domain or may be free and in this case it refers to a third entity not mentioned in the sentence .

From (15),(16),and (17) we can conclude that Arabic language has all the principles of the Binding Theory .

Conclusion

The theory of Universal Grammar holds that there are certain fundamental grammatical ideas which all human possess ,without having to learn them .All human are endowed biologically with these ideas .Universal Grammar acts as a way to explain how language acquisition works in human by showing the most basic rules that all languages have to follow .

The basic idea of Universal Grammar , that there are foundational rules in common among all humans .

One of these basic ideas is the Binding Theory.

Binding Theory accounts for relations among anaphors (himself), pronominals (him) ,and referring expressions (John) ,and their possible antecedents in sentences .

In general ,pronouns and anaphors have opposite distribution .Anaphors have to be bound in some local domain ,whilst pronouns had to be free ,but is not bound ,in that same domain ,and referring expressions had to be free everywhere .

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