CHAPTER II

G B THEORY

2.1 INTRODUCTION

The objective of any grammatical study is to describe and explain how the universal grammar (UG) is present in the mind/brain of a person. According to Chomsky (1981), the universal grammar is present in the mind as a modular structure. The UG contains different sub-theories and each sub-theory contains certain universal principles and certain language specific parameters. These principles are endowed in the brain i.e., they are innate. They are not learned ones. Similarly, the parametric options also are provided in the language faculty itself. Only the value of the parameter is determined based on the individual language data. These individual language values of the parameters are set in the sub-theories of UG and produce a language structure or core grammar of a language.

A language contains a lexicon and a computational system. For Chomsky (1988) the concept of parameter is applicable only to the lexicon, not to the computational system. He claims that each parameter refers to properties of specific elements of the lexicon or of the categories of lexical items. So, according to Chomsky, there is only one human language apart from the lexicon.
Thus, for Chomsky (ibid, p 2), "language acquisition is in a sense a matter of determining lexical idiosyncracies. Properties of a lexicon too are sharply constrained by UG or other systems of the mind/brain. If substantive elements (verbs, nouns, etc.) are drawn from a invariant universal vocabulary, then only functional elements will be parametrised. Chomsky (1992; p 5,6) sticks to his above stand by saying ".... variation is limited to non-substantive parts of the lexicon and general properties of lexical items. If so, there is only one computational system and one lexicon...."

The following structure describes how the UG is present in the mind.

2.2 UG model

```
  D - Stru - Projection principle - lexicon
    / |                      |
   Case theory move-α - bounding theory - φ - theory
    \ |                      |
      S - stru - binding theory - φ - criterion
    / \                          /
   /   \                        /
 /     \                      /     
/       \                    /       
PF       LF -------------------
```

I
2.2.1 X-Bar Theory

This theory explains the properties of all types of phrases in the language through principles. This theory replaced the idiosyncratic syntactic rules. The central insight of this theory is that a sentence consisting of phrases with a common structure is just like cells with different functions and locations in the body that share the same structure. The claim of X-bar syntax is the following: Taking x to stand for any category (noun or verb) and the head and its complement are under one node (represented here as $X'$) and then this node and specifier come under the highest node (represented here as $X''$).

1. \[
X'' \\
/ \ \backslash \\
| \quad X' \\
| / \ \backslash \\
\text{specifier} \quad X \\
/ \ \backslash \\
X \quad \text{Complement}
\]

In Indian languages (e.g. Tamil) the head takes its complement to its left; so the structure of a phrase in these languages is as follows:

2. \[
X'' \\
/ \ \backslash \\
\cdot \quad \text{specifier} \quad X' \\
/ \ \backslash \\
\text{Complement} \quad X
\]
2.2.1.1 CP and IP

Every phrase (or construction) has a head. This is one of the universals of X-bar syntax (Every construction is endocentric). The heads of NP, VP, AP and PP are N, V, A and P respectively. It is claimed that INFL is the head of S and COMP is the head of S'. So by generalising the structure (3) to S and S', we get

3. \[ CP = (S') \]
   \[ / \]
   \[ \text{specifier} \]
   \[ / \]
   \[ C \]
   \[ / \]
   \[ C \]
   \[ / \]
   \[ IP (=S) \]
   \[ / \]
   \[ NP \]
   \[ / \]
   \[ I \]
   \[ / \]
   \[ I \]
   \[ VP \]

"I" stands for inflexion. C for COMP. S is now called as inflexion phrase (IP). S' is called as COMP phrase (CP). C takes IP as complement, and I takes VP as complement. The NP in the specifier position of IP is the subject NP. The (empty) specifier of CP is the position into which wh-phrase moves as far as English is concerned.
2.2.1.2 VP - Internal Subject Hypothesis

Every phrase has the structure (3), wherein the head position is obligatory and the specifier and complement positions are optional i.e., they may or may not be generated. Every phrase can potentially have a specifier position, and with that this position can be filled. Then the question whether VP can have such a position arises. And if so, what would be the phrase that fills that position? It has been claimed that the subject NP actually is generated in the specifier position of VP and is moved into its surface position i.e., the specifier of IP (or SPEC, IP) in (3), in order for it to get case. This claim is known as the "VP - internal subject hypothesis." Adopting it has the consequence that all the verb arguments are in fact generated within its maximal projection, namely, VP. By extension one can say that for every head its arguments must be liberated within its maximal projection. This seems to be intuitively correct.

The underlying structure of (3) is (4)

(4) John loves Mary

```
   NP / \ I'
      / \  \
     I VP
   / \ \\
  I NP V
 John / \ \\
   / \ \\
  V NP \\
 loves Mary
```
2.2.1.3 Determiner Phrase (DP)

The head of a phrase is a "simple element" i.e., non-phrasal. It is a lexical or a functional category. Examples of lexical categories are noun, verb, adjective and preposition, since they head their maximal projections. Examples of functional categories are I and C, and they head IP and CP respectively. In fact, X bar-syntax claims that only the head is a simple element. A specifier or a complement may be in a maximal projection form and therefore they may be a phrase. Then what about the structure of NP shown in (5)? Is the determiner (article) a maximal projection? It is not. It is a simple element and must therefore be the head of a phrase. A recent claim is that what we commonly call a noun phrase (NP) is in fact not headed by the noun, but by the determiner, and hence it has to be properly called as determiner phrase (DP). The structure postulated is:

\[(5)\]

```
 D''
 / \  
specifier /  D'
 /  /  
D   /   N''
 /  /  
specifier /  N'
 /  /  
 N  \ complement
```
In this thesis we are not going into the analysis of the sentences with DP analysis. We are analysing the Tamil sentences with NP analysis only.

2.2.2 Projection Principle

This is concerned with how the lexical entries project onto the syntactic structure. The lexical entries not only contain details of their lexical category, meaning, etc. but also specifications of the syntactic categories (complements) that they project onto the structure of the sentence. For example, the Tamil verb *kotu* 'give' is followed by only two NPs (a) NP1 and NP2 *kotu* (-NP1 NP2). The verb *pa:r* 'see' is followed by only one NP i.e. NP1 *pa:r*. Illustration

`avan ra:manukku oru pena; kotutta:n`

'He gave a pen to Raman'

`avan oru paṭam pa:ri:tta:n`

'He saw a picture'

In the first sentence the verb *kotu* 'give' takes two NPs ie. *ra:manukku* 'for Raman', *oru pena:* 'one pen'. But in the second sentence, the verb *pa:r* 'see' takes only one NP ie. *paṭam* 'picture'. In this way the lexical entry for each verb permits only certain possibilities, not all possibilities.
Definition: Representations at each syntactic level (i.e.) LF and D and S-structure, are projected in the lexicon, in that they observe the sub categorisation properties of lexical items.

2.2.3 Ø-theory

Ø-theory concerns with the different semantic roles of the sentential constituents. Different semantic roles which could be identified (Ø-roles) are agent, patient, goal, etc. (i) Agent refers to the person or thing carrying out the action, (ii) Patient refers to the person or thing affected by the action and (iii) Goal refers to the recipient of the object of the action.

Let us consider the following illustration: (i) ra:man pa:lam si:ta:vukku ko:tutta:n `Raman gave fruit to Sita. Here in this sentence, ra:man `Raman' is the agent, pa:lam `fruit' is the patient and si:ta: `Sita' is the recipient of the action.

2.2.3.1 Conditions for Ø-role Assignment

(i) Ø-roles assign only to a A-position and not to A' position (i.e.) items such as specifier and COMP cannot be assigned Ø-roles, (ii) the grammatical function (GFs) of a lexical entry can assign Ø-roles only to those positions that conform to particular grammatical configuration of subject or
object, (iii) the agent of an action is an external $\emptyset$-role that goes outside the maximal projection of the verb: the other $\emptyset$-roles such as goal or patient are within the maximal projection. So to explain the external $\emptyset$-role of NPs, EPP (extended projection principle) is formulated.

**Definition:** Lexical requirements viz. categorical, subcategorisation (thematic properties) and structural requirements viz. the requirement that a clause should have a subject must be uniformly satisfied at all syntactic levels. For example, if a transitive verb as *devour* has an NP *agent* subject and an NP *theme* object at D-structure, then it must have the same subject and object at S structure also. Illustration:

6. \[ \begin{array} {ccc} & S & S \\ S & / & \backslash \\ NP & VP & NP & VP \\ agent & / & \backslash & agent & / & \backslash \\ V & NP(patient) & V & NP(theme) \end{array} \]

### 2.2.3.2 $\emptyset$-Criterion

The main principle of $\emptyset$-theory is $\emptyset$-criterion, which requires each thematic role to be uniquely assigned. Each constituent denoting an argument is assigned just one $\emptyset$-role and each $\emptyset$-role is assigned to just one argument denoting
constituent. The projection principle guarantees that the \( \emptyset \)-criterion applies to all levels of syntactic representation, though it properly applies to LF, the level at which all the syntactic and lexical information relevant to semantic interpretation including \( \emptyset \)-role assignment is brought together.

### 2.2.4 Government Theory

This plays a central part in the sub-systems of rules. It has roles to play in many other modules of language faculty such as case theory, binding theory, bounding theory, etc. This theory deals with matters such as the following ones:

1) What are the various governing elements or governors in a language?

2) What are the governors or the elements that are governed by other elements?

3) How does a governor govern its governed elements?

The government theory involves notions such as C-command, governors, governed ones and barriers.
2.2.4.1 C-command

"X C-commands Y iff the first branching node dominating x dominates y, and x does not dominate y, nor y dominates x (A branching node is a node which branches into two or more immediate constituents") (Radford, 1988:115).

The above can be schematically represented as follows:

```
  Z
 / \  
X   Y
 / \  
A   B
```

Here x and y mutually C-command each other. At the same time, x C-commands the daughter branches of y viz., the nodes A and B. However A and B cannot C-command x since the first branching node dominates A and B in Y while for X, it is Z.

2.2.4.2 Government

In the above representation, if x and y come under the same maximal projection (here z) then they mutually govern each other. On the other hand, though A and B are C-commanded by x, if y is a maximal projection, then x cannot govern A and B. Thus the maximal projection stands as a barrier for government of A and B by x.
The important difference between C-command and government is, whereas the C-command has only upper limit, government has the lower limit too.

2.2.5 Binding Theory

This theory is concerned with the relationships existing between different types of nouns in a sentence. It contains three principles:

1. An anaphor is bound within the local domain.
2. A pronominal is free from the local domain.
3. A referential expression should be free.

To illustrate let us see the following sentences:

7 (i) si:ta:tannai t ta:ne atittukon'ta:l
   'Sita hit herself'

In the above sentence tannai t ta:ne `herself' is an anaphor. This anaphor has the antecedent si:ta:'Sita' within its local domain (here within the clause).

7 (ii) si:ta:avanai atitta:l
   'Sita hit him'
In this sentence the pronoun *avan* 'he' is pronominal. This pronominal has no antecedent within its local domain.

\[
(iii) \text{si:ta:ca:ppa:tu ca:ppi:ta:1}
\]

'Sita ate meals'

Here the referential expression *si:ta:* 'Sita' is free.

In the above example, the local domain is defined as the immediate higher NP or S which helps to determine whether the concerned element is an anaphor or a pronoun.

### 2.2.9 Bounding Theory

The various conditions placed for transformations in the earlier generative grammars are now brought under the bounding theory. But the nature of the conditions of earlier models is different from this theory. In the earlier model conditions were placed for the structural descriptions which undergo transformation, but bounding theory puts conditions for the elements which move. If many movements are needed then the cyclic principle would be applied. This can be illustrated as follows:

8a. "John might suspect that he will resign". 
In this sentence, if "might" moves to the complement position then the sentence would be grammatical. In other words, the Aux of the main clause could move to the front, since it crosses only one node (IP).

"Might John suspect that he will resign?" On the other hand, if the Aux of the embedded clause "will" moves to the front, then the sentence would be ungrammatical, since it crosses more than one node, here two nodes (IP and CP).

8b. "Will John might suspect that he resign?"

From the above, it is clear that no constituent can move crossing more than one node.

The following examples show the cyclic principle

8c. "what did [[IP you say that [IP you thought that [IP you would do - ]]] ?"

This sentence has four IPS. So the "what" first comes to the specifier position of the second IP. Then it moves to the third IP and finally reaches the fourth IP. This is called as cyclic movement. This kind of cyclic principle makes this sentence as a "grammatical one". The above examples are from Radford (1988. p 567-69).
This theory deals with the mechanism of recovering one specific type of category called "missed" nouns. Subjectless sentences are common in natural languages. If the agreement element is strong in a language, then the subjectless sentence would be possible. Otherwise this type of sentence is impossible. Let us consider the following sentences

(i) John\textsubscript{i} wants [\textsubscript{PRO}_j to leave] 
(ii) John persuaded Bill\textsubscript{i} [\textsubscript{PRO}_j to leave]

English non-finite verbs do not have any AGR inflection that will enable one to recover the subject. Anyhow the native speaker could easily recover the missing noun. This type of empty categories are symbolized PRO (referred as big PRO) in GB theory.

In both (i) and (ii) i = j, but in (i) John is the subject and in (ii) Bill is the object. In other words, want and persuade are subject and object control verbs respectively and are lexically marked as such.

However, while analysing some of the Tamil sentences, PRO is present in governed position in Tamil. That means it is not PRO, it is pro only. Let us consider the following sentences:
The embedded clause non-finite verb po:ka 'to go' has no overt subject argument. However, any native speaker of Tamil can recover it as na:n 'I' in Tamil. If a sentence contains more than one clause but has the same subject, then the subject of the non-finite verb should be dropped. Otherwise, the sentence would be ungrammatical and unacceptable. So in Tamil, control theory works with pro and not with PRO.

2.2.11 Movement

Move-α refers to the idea that any part of a sentence can be moved anywhere. However, move-α has some constraints i.e., elements can move only to certain locations and certain elements in a sentence only can be moved. Some of these restrictions apply to all human languages. Some are parameters that vary within limits from one language to another. In terms of X-bar syntax movement involves elements which are maximal projections N" (NP) or elements with zero projection (V).
2.2.11.1 NP-Movement

It is the movement of NPs from A position to Non-∅ marked A-position and it leaves NP-trace. Let us consider the following illustrations.

11. D-S ...... seems [John to be happy]
S-S John seems [ t to be happy]

Here, the embedded clause subject `John' has no governor to get nominative case because of the infinitive nature of the embedded clause verb. But, the case filter says that no overt NP without case should occur. Hence the above NP `John' has to move to subject position of the main verb `seems' to get the nominative case. Otherwise, the sentence would be ungrammatical. Here in the above sentence `t' is the NP-trace.

2.2.11.2 Wh-Movement

It is the movement of Wh-phrases from A position to the Non-A position of specifier of C, and it leaves Wh-trace (variable).
Let us consider the following illustration

12.  D-S: You INFL see whom
    S-S: Whom did you see?

From the above diagram, we understand that the NP whom in the VP at D-S level is moved to the COMP position in the S-S level and leaving a trace (i.e., Wh-trace) in the S-S level.

2.2.11.3 V-Movement

V-movement is the movement of V to INFL or to the head of C.

Let us consider the following example:

13. Susan likes tomatoes

    Generally the INFL(I) and its feature come to the left side of the verb in a sentence but in the surface sentence of English, these features are actually manifested on the right side of the verb.
In 'Susan likes tomatoes' the S-ending of 'likes' shows present tense and singular agreement. The GB account is that "there is a rule called R, which assigns the elements of INFL to the initial verbal elements of VP. It is a parameter of UG whether languages use rule R in the syntax or in the PF component.

If the latter is the case, then the rule R changes the order and attaches the appropriate features to the end of the verb. However, the rule R explains nothing. It recognises the issue but adds an adhoc rule to relate the feature of INFL in the right place.

The barrier account reinterprets rule R as movement of the verb. The V is originally with VP. It moves to become part of INFL and to incorporate the relevant features.

The D-structure of the above sentence (13) is

Susan Ie Vp likes tomatoes

After the application of V-movement, the resultant superficial structure is as follows:

Susan Vp (like present singular) (tomatoes)

Susan Pre like tomatoes -> Susan likes tomatoes
V movement brings the amalgamation of INFL and V within the theory in a less arbitrary fashion than rule R. One difference from rule R and from the earlier analysis from which it derives is that V moves to the left rather than INFL to the right.

2.2.12 Case Theory

The case theory in GB theory says that "every phonetically realised NP must be assigned (abstract) case" (Chomsky 1986:74). The above case filter will, thus, predict the ungrammaticality of (1) and the grammaticality of (2) given below:

1. raːman nalla
   'Raman good'

2. raːman vantaːn
   'Raman came'

In (1) there is no source of case on 'good' because nalla 'good' being an adjective cannot assign nominative case to the subject NP raːman 'Raman' and hence it becomes ungrammatical. But in the second sentence, vantaːn 'came' has a source of case and hence it is grammatical.
2.2.12.1 The Need for Case Filters

Like all other sub theories in GB, case theory also interacts with other sub theories and produce wellformed sentences. Now we will see how case theory interacts with $\phi$-theory.

2.2.12.2 Visibility Condition

Chomsky (1986) assumes an inherent association between case-marking and theta marking (semantic role assignment to arguments) and provides motivation for the existence of the case filters as a principle of universal grammar in terms of theta-marking.

2.2.12.3 Visibility Condition Definition

"An element is visible for theta-marking only if it is assigned case (Chomsky 1986a:94). Since theta-roles or semantic roles are plausible primitive categories of the structure of language, in having their correlation outside the structure of language, the visibility condition provides a potential explanation for the presence of the case filter in the grammar".
2.2.12.4 Case Theory and Government

Government theory plays an important role for case assignment in GB theory. Case is assigned through government. Government is defined in C-command relation.

2.2.12.4.1 C-Command: Definition

X - C-commands Y iff the first branching node dominating X dominates Y and X does not dominate Y, nor does Y dominate X (a branching node is a node which branches into two or more immediate constituency). This can be schematically represented as follows:

```
  Z
 / \  
X   Y
 / \  
A   B
```

Here X and Y mutually C-command each other. At the same time, X C-commands the daughter branches of Y viz, the nodes A and B. However, A and B cannot C-command X, since the first branching node dominates A and B in Y while for X, it is Z.
In the above statement, Z (the head) does not C-command the specifier position of its projection, the C-command formulation of government cannot handle nominative case assignment by INFL to SPEC-IP position. For this, Koopman and Sportiche (1988) propose the nominative case assignment through Spec-head agreement. In our study also we are adopting this proposal.

Two other notions which enter the definition of government are 'barrier' and 'minimality'. 'barrierhood' is defined in terms of blocking category (BC).

A is a blocking category if it is not L-marked.

2.2.12.4.2 L-Marking

A is L-marked if it is theta-governed by a lexical category.

Theta-government:

A is theta-governed by B if B is a zero level category that theta-marks A, and A and B are sisters.

2.2.12.4.3 Theta-Marking

A is theta-marked by B if A is a complement of B. Having defined blocking category and the associated concept we are able to define a barrier.
2.2.12.4.4 Barrier

A is a barrier for B if (i) or (ii);

(i) A is a blocking category, and A ≠ IP

(ii) A immediately dominates C, where C = blocking category.

The last clause in the definition government relates to the minimality defined as in below:

2.2.12.4.5 Minimality

A governs B if there is no C separating A and B where C is a category of the level of A. Separation may be defined as follows;

2.2.12.4.6 Separation

C separates A and B if it C-commands B but does not C-command A. The above stated definitions can be illustrated as follows:

```
17. CP''
    /    \
 SPEC  C'
    /    \
 C     AGRP
    /    \
 SPEC  AGR'
    /    \
 AGR   TP
    /    \
 SPEC  T
    /    \
 T     VP = barrier
    /    \
 SPEC  V'
    /    \
 V     XP/COMPLEMENT
```
In (17) V, being a lexical category, theta-governs and L-marks its complement positions. Any phrase in this complement position will, therefore, not be a blocking category. VP itself is a blocking category, and hence a barrier. Because T, being a functional, non-lexical category does not L-mark VP.

The C in (17) can govern the spec-AGRP position because the AGRP (i.e., IP) although not L-marked, is a defective category with respect to barrierhood. The C, however, cannot govern the TP for the reasons of minimality, because the TP has closer governor of AGR.

As for CP in (17) it is a barrier because it dominates a blocking category namely AGRP.

2.2.12.4.7 Assignment of Case Through Government

In the following condition, an NP will get case 1. An NP gets case if it is in governed position and if the governor is a case assigner and 2. In specific un governed positions an NP may get case through exceptional case marking.

2.2.12.4.8 Configuration of Case Assignment

This issue can be broken down into two parts (a) what are the elements that assign case and what are the cases they assign?
(b) what kind of relation that holds or must hold between a case assigner and a case assignee?

Generally -N categories like verb, preposition, tense and AGR assign cases, but sometimes +N categories such as adjective and noun may also assign cases under certain conditions. According to Chomsky (1981), the following cases are assigned by the following elements:

1. NP is nominative if governed by AGR.
2. NP is objective if governed by the verb.
3. NP is oblique if governed by P.
4. NP is genitive in (NP-X bar).
5. NP is inherently case-marked as determined by the properties of its (-N) governor.

So far, we have seen the various sub-theories of UG and its principles and parameters. Now, we will take case assignment parameters alone and will see how it has been working for Tamil Language.

2.13 Case Assignment in Tamil

Every noun phrase should have some particular case and this case should be assigned by some elements in sentences. For
instance, in the following Tamil sentence:

\textit{ra:man palam cappitta:n} \\
\textquoteleft Raman ate fruit\textquoteright

\textit{ra:man} \textquoteleft Raman\textquoteright gets nominative case from INFL, \textit{palam} \textquoteleft fruit\textquoteright gets objective case from verb.

The above illustration shows that the case assignment deals with (i) the various case assignees of Tamil and (ii) how they assign case to different NPs. In the following chapters, all these aspects have been discussed elaborately.