Islamic Azad University Of Bandarabbass

The Accessibility of Universal Grammar in the Acquisition of Structure-dependency in Persian Learners of English

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TO MY PARENTS

FOR

THEIR LOVE AND SUPPORT

ACKNOWLEDGMENTS

Table of Contents

Chapter One :Introduction

Chapter Two : Review of Related Literature

Chapter Three : Methodology

Chapter Four : Data Analysis

Chapter Five: Conclusion and Implications

Bibliography

List of Figures

List of Abbreviations

ASLA : Adult Second Language Acquisition

E-L : External Language

G/B : Government & Binding

I-L : Internal Language

ILG : Initial Language Grammar

LAD : Language Acquisition Device

LF : Logical Form

PF : Phonetic Form

PLI : Primary Linguistic Input

POF : Poverty of Stimulus

S$_0$: Zero Initial State

S$_S$: Steady State

UG : Universal Grammar

Abstract

To what extent does Universal Grammar (UG) constrain second language (L2) acquisition? This is not only an empirical question, but one which is currently investigable. In this regard, L2 acquisition is emerging as an important new domain of psycholinguistic research. Three logical possibilities have been articulated regarding the role of UG in L2 acquisition: The first is the **No-Access** hypothesis that no aspect of UG is available to the L2 learner. The second is the **Partial-Access** hypothesis that only L1-instantiated principles and L1-instantiated parameter-values of UG are available to the learner. According to the third, called the **Full-Access** hypothesis, UG in its entirety constrains L2 acquisition.(Cook,1996.p:291)

The research developments recommend the need for a reappraisal of the poverty of stimulus argument. This thesis approached this question in the context of structure-dependence in language acquisition, specifically in relation to auxiliary fronting in interrogatives: (the ability to form the correct interrogative out of declarative based on right movement when the sentence has an auxiliary verb within the subject NP, and thus the auxiliary that appears initially would not be the first auxiliary in the declarative, providing evidence for correct auxiliary fronting).

X

The hypothesis that second language (L2) acquisition is guided by UG was guided. In other words, L2 learners also adopt the structure-dependent yes/no question formation rule as in L1 acquisition.

Persian learners of English in high school who were exposed to a series of training sessions in relative clause structures, were tested on recognition and use of relative clauses. It is assumed that learners can generate two types of errors: structure-independent and structure-dependent , henceforth called Learner Strategy Error, although the responses provided by the subject is not true, but it did not violate structure-dependence principle too . They, then, were tested for their preference for structure-dependent versus structure-independent versions of the question formation rule. It was discovered that almost all of the subjects chose the structure-dependent rule(22out of 30), and just few of the subjects(8 persons) committed learner strategies errors (but none of them made structure-independent errors). It is concluded that the lack of structure-independent errors suggested that learners entertained only structure-dependent hypotheses, supporting the existence of innate grammatical structure. In this way, results supported the hypothesis that L2 learners are guided by a UG principle(structure-dependence) in dealing with the yes/no question formation.

CHAPTER 1

1.0.Preliminaries

One of the most controversial issues in acquiring a language is the remarkable departure of learner from not having any language (S_0) to the fully-developed competence of a native speaker(S_s) just within a short period of time. Any theory of linguistics must be capable of providing a well-principled reason that the input to which the child is exposed to can not account for the system of knowledge (highly abstract, intricate, complex ..) the learner ends up with. So, the so-called "the poverty of the stimulus" is at the heart of logical problem of language learning.(Chomsky,1982)

$$S_0 \text{.........} \quad \bigcirc \text{ ? } \bigcirc \quad \text{.........} S_s$$

Figure 1.1: A Gap-filling Mechanism

Some of the observation which indicates the complexity of language acquisition and in the meanwhile underscores **"the poverty of stimulus"** is as follows:

1-Speed of language acquisition

"Speed of language acquisition" indicates that children acquire their first language in such an impressive fast rate that they must "know" a lot to begin with. We can approach this in two ways. The first alternative suggests that language-acquisition is *absolutely* fast on its own and   is *relatively* fast, compared with acquisition of other bodies of knowledge:

:

> Mere exposure to the language, for a remarkably short period, seems to be all that the normal child requires. Grammar is acquired effortlessly, rapidly . Knowledge

of physics, on the other hand, is acquired … through generations of labor (Chomsky,1967)

2-Convergence among individuals

the claim**,** Convergence among individuals**,** is to show that individuals growing up in a language community each have different experiences and finite samples of language, but at the end they all ends up with a same competence, acquire essentially the same language.

> every child … acquires knowledge of his language, and the knowledge acquired is, to a very good approximation, identical to that acquired by others on the basis of their equally limited … experience (Chomsky 1975)

3- Age-dependence

The Age-dependence argument claims that language acquisition ability is ruled by a biological clock which causes the ability to diminish sharply "… at a relatively fixed age, apparently by puberty or somewhat earlier" . This line of argument pertains to Lenneberg (1967).

4-Poverty of data

Poverty of data refers to the fact that the data available to a child through observation of elders' speech are not adequate for learning the language successfully.

Again the argument has two variants:

 it claims that the speech heard by a child is of poor quality, containing slips of the

tongue, incomplete utterances, and so forth:

> … much of the actual speech observed consists of fragments and deviant
> expressions of a variety of sorts (Chomsky 1965)

It also argues that the child's language experience will typically include *no* evidence bearing on specific features which children nevertheless succeed in mastering.   A yes/no question in English is formed from the corresponding statements by operating on a verb: in the simplest case, by moving the verb to the beginning of the sentence. If the sentence contains multiple clauses, a learner must select among alternative hypotheses about which verb to move. The correct rule is to move the verb of the main clause, but an alternative hypothesis would be to move the first verb. That is, from the statement:

> *the man who is tall is sad*

the correct question rule forms:

> *is … the man who is tall __ sad?*

while the alternative hypothesis would give the nonsense-sequence:

> *is … the man who __ tall is sad?*

According to Chomsky, the average child could not choose between these hypotheses by observation, because relevant examples rarely arise.

5-Language universals

Chomsky and other linguistic nativists have claimed that all human languages share

specific structural properties which are not part of general intelligence, and which have no functional explanation. An example would be the "structure dependence" of transformational rules, such as the English question-forming rule discussed above:

> it is natural to postulate that the idea of "structure-dependent operations" is part of the innate schematism applied by the mind to the data of experience (Chomsky 1972)

Due to these lines of arguments, language acquisition is called as "learnability problem" ,"projection problem," or "a logical problem; that is, there is a mismatch between primary linguistic input and the generative grammar the child eventually attains.

"**Logical problem**" of language acquisition (Radford, 1997):

Learnability is a criterion of adequacy for a theory of grammar." Any adequate theory of grammar must be able to explain how children come to learn the grammar of their native language in such a rapid and uniform fashion."

By considering all this evidence it can be claimed that:

Hypothesis:

- If you know X (Language)
- And X is undetermined by the input children receive (The data we are exposed to)
- The knowledge of X (Language) must be innate

Considering the above-mentioned fact, any theory of language acquisition is required to justify how children attain their eventual grammar, and why they do so the way they do.

Generative grammar tries to set forth a solution to this problem by claiming that children are genetically endowed with Universal Grammar (UG) which put some limitation on the form of grammar and that they ultimately arrive to as an adult with the aid of UG and through interaction with the linguistic input. So the question of whether or not Universal Grammar is available(in whole or part) to adult second language learners has been the focus of much of the recent research on second language acquisition. Researchers working with principles and parameters approaches to linguistic theories have generally reached agreement that UG is available to L2 learners, thus, it is not a debated issue. However, it is important to what extent UG is exactly available in language acquisition. In this study, structure-dependence was taken as one of the UG principles and it was explored: how learners are able to form Y/N questions out of declaratives (the subject-auxiliary inversion rule). So it could work as a gap-filling item for the problem of reaching a grammar which is unexplainable in terms of available input.

The most impressive claim in this study which makes it interesting and brings it under the chance of investigation is that: Persian learners of English as their foreign language (L2), adopt the same approach and rule as children acquiring English as their first language ; UG plays a similar role in acquiring the rule of grammar. This leads us to the claim that there is virtually no difference between L1 and L2 as far as structure-dependency is concerned.

1.1.Objectives and Significance of the study

There is a developmental insight and increasing awareness among linguistic theorists and psycholinguists that the study of adult second language (L2) acquisition is rapidly developing into one of the most dynamic and promising areas of investigation in cognitive science. Traditionally, these language scientists have paid little attention to the issues surrounding L2 acquisition. However, recent theoretical and empirical advances have convinced a growing number of scholars that careful investigation of the L2 acquisition process is likely to be a very fruitful endeavor in understanding the cognitive processes specific to language learning or the biological endowment for language, namely, Universal Grammar (UG).

An essential argument of this dissertation is that understanding how L2 acquisition occurs, will provide a unique and fundamentally important perspective on the mental processes involved in language learning and use. This perspective is different from and complementary to that provided by the study of first language (L1) acquisition in children. L2 learners, specifically adult learners, bring capacities to the language learning process that are both similar to and different from the capacities of children. The differences can be due to the fact that limitations regarding general developmental deficits are typically irrelevant in adult language acquisition. Therefore, the study of L2 acquisition provides a unique context in which we can examine language development independent of maturational issues. Furthermore, by contrasting adult L2 acquisition and child L1 performance, researchers may be able to identify the role played by experience

in general, as well as by the existence or absence of an already functioning L1, in the types of processes that language learners at different ages might rely on.

On the other hand, L2 acquisition research has pointed to striking similarities between child and adult language acquisition, a fact that can be explained if we view these two cognitive processes as fundamentally similar in nature. At this level, then, the study of how individuals acquire an L2 is essential for the development of theories of language. If a linguistic theory is to provide an empirically accurate and comprehensive characterization of language capacity and learning, it must accommodate the facts of L2 acquisition. A theoretical or empirical account that is responsive to the facts of children's L1 learning alone is almost certain to be incomplete and may be fundamentally misguided in its conclusions.

Thus, a central question is, to what extent is adult L2 acquisition constrained by the linguistic principles that determine L1 acquisition? In this dissertation, the Principle framework of Universal Grammar was adopted and the principle of structure-dependency that have been articulated regarding the role of UG in second language acquisition was examined.

1.2.Structure-Dependence principle in L1 acquisition:

The best known example of application of the poverty of the stimulus argument is the case of knowledge of structure dependency in subject-auxialary inversion to form Yes/No question.

Lets open up our disscusion by the following instances:

Example A:

1-I can go

2-Can I go?

Example B:

3-The man is tall

4-Is the man tall?

Example C:

5-The man who is tall is in the other room.

6- Is the man who is tall in the other room?

Hypothesis 1: (Linear-order)

- To form a Yes/No question, interchange the first and second element with each other:

Example A:

1-I_1 can$_2$ go

2-can$_2$ I_1 go?

But what about example B?

Example B:

3-The$_1$ man$_2$ is tall

4-*Man$_2$ the$_1$ is tall?

It seems that it can account just for simple Yes/No question.

Hypothesis 2: (Hierarchical-order)

– To form a Yes/No question, move the first auxiliary of the corresponding declarative sentence to the front of the S. Thus, we can convert S3 to S4:

3-The man is tall
4-Is the man tall?

But this rule couldn't account for Example C:
5-The man who is tall is in the other room.
6-*Is the man who tall is in the other room?

Hypothesis 3: (Structure-dependence)

-To form a Yes/No question, move the first verbal element following the subject noun phrase of the corresponding declarative sentence to the front of the S. (If there is no auxiliary, insert 'do' and move it to the front of the S.)

Do children ever entertain hypotheses based on linear order or hierarchal order or another type? Chomsky(1982) says structure-dependence is an "innate schematism applied by the mind to the data of experience. Children never entertain hypotheses about the linguistic evidence that they hear that are based on linear order or hierarchical, rather they employ the structure-dependent rule".

Given example C as the structural description of sentences 5 and 6 , one can conceive a subject as the NP immediately governed by the sentence.

Now we can justify example C:
5- The man who is tall is here
6- Is the man who is here is tall?

To summarize this rule:

S -> NP AUX VP,   NP -> NP S'

[[the boy [who is tall]][(can)[swim fast]]]

S   NP   S'   AUX VP

 Hypothesis 1 and 2 (Structure-Independent) seems to be computationally simpler than hypothesis 3 (Structure- Dependent) , so, how can we adopt the most difficult one while there are other simpler ones?

The Predictions:

– If children never entertain Hypotheses 1and 2, and instead jump right to hypothesis 3, then they should have no trouble producing and understanding sentences such as,

• Is the man who is tall in the other room?

1.3.Structure-dependence principle in L2 acquisition

 The yes/no question formation rule is acquired by children with a UG constraint to the effect that grammar be learned with reference to syntactic knowledge of any sentences under analysis. Children are guided by principles of UG in acquiring rules of grammar, and the rules of grammar they adopt must be dependent on the structure of language. Faced with 'the logical problem of language acquisition,' children must attain grammars of a language, and in so doing, they have to choose one grammar to the exclusion of other possible grammars. The foregoing sections saw the children's adherence to the structure-dependent H3, right from the outset. Structure-independent candidates H1-2, do not have a place even though they appear computationally simpler.

  Is this also the case with L2 learners? Do they also adopt the rule dependent on structure of language as in L1 acquisition? Or do they have their own learning strategies,

such that deal specifically with the facts about English yes/no question formation? This question leads to a specific hypothesis .

HYPOTHESIS

L2 acquisition is guided by UG, L2 learners also adopt the structure-dependent yes/no question formation rule as is the case with L1 acquisition.

The hypothesis stated above involves three aspects of logic. The first assumption is that L2 acquisition does not differ from L1 acquisition. Second, L1 acquisition is mediated by a principle of UG, structure-dependence . It follows as the third that L2 acquisition is also guided by structure-dependence as is the case with L1 acquisition. We could summarize these three aspects in:

I. L2 acquisition equals to L1 acquisition

II. LI acquisition is guided by a UG principle, structure-dependence

III. L2 acquisition is also guided by a UG principle, structure-dependence as in L1

The most important point here is :there are some fundamental differences between child L1 and adult L2 acquisition. For the adult learner there are:

•Indeterminate intuitions

•Importance of instruction

•Negative evidence

•Role of affective factors

1.4.Summary

The logic of this thesis is based upon nativist approach toward language acquisition: if you know X, and X is underdetermined by learning experience, then the knowledge of X must be innate. The best known example of this argument concerns the knowledge of *structure dependency* in question inversion.

The child possesses innate knowledge automatically excluding incompatible hypothesis among the available ones for forming a question in English which involves inversion of the main clause auxiliary verb and the subject:

1-. Are they *e* drawing a picture?

2-. Have they *e* finished the paper?

3-. Is she *e* dancing?

Exposure to such sentences underdetermines the correct operation for question formation, as there are many possible hypotheses capable of generating the surface strings:

The hypotheses

a. Linear order

(i) Front the first auxiliary

(ii) Front the last auxiliary

b. Linear + hierarchical order

(i) Front the first auxiliary following the first NP

(ii) Front the first auxiliary preceding some VP

C. Structure-dependence (Creative ones)

To form a yes/no question , move the topmost auxiliary of the corresponding declarative sentence to the front of the sentence, if there is no auxiliary, insert do and move it to the front of the sentence.

The correct operation for question formation is structure dependent: it involves parsing the sentence into structurally organized phrases, and fronting the auxiliary that follows *the subject NP*, which can be arbitrarily long:

4-a. Is [the man who is here] *e* tall?

4-b. Has [the girl that is ordering the food] *e* written a book?

Yet children do not go astray and stick to the correct operation from very early on. Surely, if children hear enough sentences like those in (4), then they could reject the first auxiliary hypothesis. But if such evidence is virtually absent from the linguistic data, one can not conclude that children do not entertain the first auxiliary hypothesis, because the knowledge of structure dependency is innate.

CHAPTER 2

2.0.Review of the Related Literature

Research in language acquisition is an impressive and diverse area, since we can approach and observe this phenomenon (first and second language acquisition) from varied perspectives . Sociology, psycholinguistics, pure and applied linguistics, education, are all scientific fields which, at different levels, can be interested and influential .

In this paper, the perspective pertains to generative theory and more specifically to that of the Government-Binding Framework (Chomsky, 1986). Government and binding is a theory of syntax in the tradition of transformational grammar. This theory is a radical revision of his earlier theories and was later revised in "A Minimalist Program for Linguistic Theory "(1993).

The name, Government-Binding, refers to two central sub-theories of the theory: government, which is an abstract syntactic relation, and binding, which deals with the referents of pronouns, anaphors, and R-expression. GB was the first theory to be based on the principles and parameters model of language, which also underlies the later developments of the Minimalist Program.

 Working within the framework of Government-Binding, theories of syntax have been remarkably developed. For a theory to be valid, it must be testable, falsifiable, and explicit. There is less significant theory in other aspects of language knowledge such as discourse and pragmatic competence. This could be justified due to the nature of their objects exposed to a high degree of variation. Discourse and pragmatic competence are not always organized according to a discrete open system pattern. One of the reasons why there is so much work in syntax is that one can ask very precise and explicit questions,

and formulate a very accurate hypotheses on the formal properties of language and test them. Another line of logic is that syntax as a computational system in the mind represents a 'bridge' between other important areas of language and relates phonetic forms (sound system) to logical form(meaning system), thus assuming a central role.
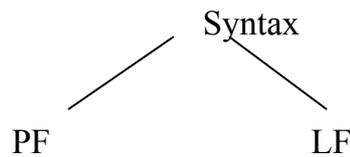
Syntax
PF   LF

Figure2. 1:computational system of syntax

One of the tentative areas of research in generative grammar is L1 acquisition and the most predominant proposals concerning L1acquisition is the **Innateness Hypothesis**: children are born with an innate capacity for learning human language. So certain aspects of language structure seems to be preordained by the cognitive structure of human mind. here are some lines of arguments to support the Innateness Hypothesis.

1.   Specialization   of   the   human   brain   for   language(Modularity)

2.   A   critical   (or   sensitive)   period   for   language   acquisition(CPH)

3.   properties   of   the   "input"   (Plato   problem: poverty   of   stimulus)

4.   Complexity   of   human   language(the   intricate   system   of   syntax)

5.   Uniform stages in language acquisition (Dualy & Johnson)

6.   Speedness

now, lets examine some of the above reasons in length:

1-modularity:

The idea of mind modularity was first proposed by Fodor (1983), instructor of psychology in MIT university. Mind is composed of independent, domain specific

processing modules (cells or compartments of a larger system) governed by a central controlling module. modular system must fulfill certain criteria:

1- Domain Specificity: Modules only operate on a certain kinds of inputs. they are specialized

2- Information Encapsulation: Modules operate automatically on their own, not need to refer to other psychological system

3- Obligatory Firing: modules process in a mandatory manner

4- Fast Speed: Due to encapsulation, no time wasting to determine whether or not to process the incoming input

5- Shallow Output: they are simple

6- Limited Inaccessibility

7- Characteristic Ontogogy: regularity of development

8- Fixed Neural Architecture

Chomsky used this idea, modularity of mind, in the domain of language modularity: an independent, automatic part of mind is devoted to language which is called: Language Acquisition Device(LAD).this idea was revised due to some ambiguity and insufficiency of LAD, e.g.: the content of LAD is vague and it lacks explanatory adequacy. so, he changed it to UG.

2-Critical Period Hypothesis

Lenneberg (1967), proposed: crucial period of language acquisition ends around the age of 12 years. if no language is learned before then, it can never be learned to a normal and fully functional sense.

3-input: The poverty of stimulus and Plato's problem

Chomsky (1981): how do we come to have such rich and specific knowledge of such intricate system of belief and understanding, when the evidence available to us is so meager?

In principle, it may be possible to study the problem of determining what the built-in-structure of an information processing (hypothesis-forming)system must be to enable it to arrive at the grammar of a language from the available data…

Children are exposed to the input: primary linguistic data, they hear a number of sentence said by their parents and caretakers, and then he generates the grammatical and correct sentence. But the problem is: there is a mismatch between what goes in and what comes out. it means: the available data to the child can not account for his knowledge about language consists of: structure-dependency, projection principle, binding principle and so on. so the external factors can not justify the internal ones. the problem could be aroused from different ways. first of all the properties of input itself:

- Meagerness (limited, finite exposure to data brings about ability to produce/understand any of an essentially unbounded number of sentences (Creativity)

- Lack of negative evidence (there are many sentences children never hear.)

- Idiosyncrasy (child-directed speech is idiosyncratic but children end up with grammars that are very similar to those of the others in the same speech community. (Convergence)

- Positivity (children are not given negative data, i.e. details of what is ungrammatical.

- Degeneracy (children are exposed to numerous errors in adult speech , hesitations, breaks in construction, retracing, repairs to vocabulary and to pronunciation, false start).

On the one hand, we have degenerated, meager and impoverished data and on the other hand we have an intricate, complex and highly abstract knowledge of language. So, if the mind couldn't create it from the experience in the surrounding environment, the source must be within the mind itself. If the grammar the child ends up with, contains principles and parameters that couldn't be made from the primary linguistic data, there must be a system in mind which not only processes the information , but also should supply the missing information from the data, and in this way contributes to reconstruct it.

```
┌───────┐          ┌───────┐          ┌───────┐
│  PLI  │ ───────▶ │  UG   │ ───────▶ │  P/P  │
└───────┘          └───────┘          └───────┘
  Input            Module of LA          Output
```
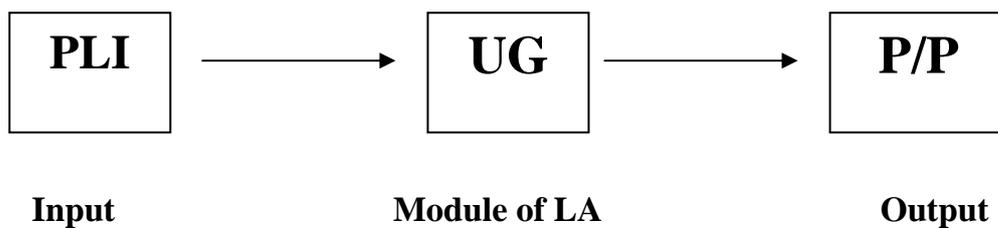
Figure 2.2:The UG model of language acquisition

According to Chomsky (1965), "Aspects of the Theory of Syntax", the linguistic prerequisites for language acquisition are as follow:

1   "A child who is capable of language learning must have

   (i) a technique for representing input signals

   (ii) a way of representing structural information about these signals

(iii) some initial delimitation of a class of possible hypotheses about language structure

(iv) a method for determining what each hypothesis implies with respect to each sentence

(v) a method for selecting one of the (presumably, infinitely many) hypotheses that are allowed by (iii) and are compatible with the given primary linguistic data" (Chomsky 1965: 30)

It is also couched in Pinker 1984, Language Learnability and Language Development:

2 "..the continuity assumption should apply not only to the child's cognitive mechanisms but to his or her grammatical mechanisms as well: in the absence of compelling evidence to the contrary, the child's grammatical rules should be drawn from the same basic rule types, and be composed of primitive symbols from the same class, as the grammatical rules attributed to adults in standard linguistic investigations. I propose that the continuity assumption be applied to accounts of children's language in three ways: in the qualitative nature of the child's abilities, in the formal nature of the child's grammatical rules, and in the way that those rules are realized in comprehension and production."(Pinker,1984)

The child is assumed to have innate grammatical category labels such as nouns, verbs, prepositions, adjectives, some universal format of phrase structure such as X-bar theory, constraints on form and interpretation such as structure dependence of transformations,

locality conditions on movement, as well as parameters that delimit the range of possible variation in human language etc. The child's language learning device (LAD) is understood to be an intricate deductive mechanism.

Now, we can use four stages of poverty of stimulus in order to prove the innateness of knowledge

Step A: A native speaker of a particular language knows a particular aspect of syntax

Step B: This aspect of syntax couldn't be learned from the input typically available to children, so PLI can not justify it

Step C: This aspect of syntax is not learnt from outside: the source of knowledge isn't in the outside environment

Step D: This aspect of syntax is built-in-the mind

Although the input can not account for output, it should be beard in mind that without any evidence at all, the child can not pick up anything and with positive evidence he/she can acquire his first language. So, the sources of evidence available to the child are as follows:

1- positive evidence (actually occurring sentences provided by parents)

2- direct negative evidence(correction, expansion and explanation by speech community)

a) Explanation: explanatory evidence could compensate for the inadequacy of positive evidence. but the problem is: conscious knowledge can not be provided by ordinary people, and even if the parents are so capable of explaining the abstract system, a child who is old enough to understand such complicated explanations ,is hardly in need of it.

b) Correction

explicitly correcting child mistakes and malformed sentences:

 Child: Nobody don't like me!

Mother: No, say: nobody likes me

Child: Yes, nobody don't likes me!(to no avail)

C) Expansion

Expanding the child language and providing anything missing while preserving the content words in their original order

Child: draw a boot paper

Mother: that's right, draw a boot on paper

3-indirect negative evidence (those sentences that the child never hears around himself, cause nobody states it, e.g.: null-subject sentences in English)

2.1.Universal Grammar: Basic Assumption

Up to now, some supporting evidence for the presence and existence of Language acquisition device was provided. now we are on to give in depth explanation about the nature of the system.

Universal Grammar was proposed by Avram Noam Chomsky, the most prominent linguist of the 20th century, under the idea of Government and Binding(1981). After Chomsky's lecture on Barriers(1986), since the label gave an undue prominence to the two elements of the theory whose states was not fundamentally different from others, he changed the title to: Principle & Parameter. Universal Grammar is a property of human mind, what we all have as a common possession. so, it's a theory of knowledge not of

behavior. it concerns with the internal structure of mind and tries to integrate grammar, language and mind.

Chomsky's works could be couched in 2 categories:

1- his works on syntax(rejection of structuralist)

2- his works on language(rejection of behaviorism)

A brief review on Chomsky's works would lead us to the following chronological arguments:

1955: The logic of linguistic theory

1957: Syntactic Structure(PSR or rewrite rule: base component + T-rule)

1959: Review of B.F.Skinner verbal behavior (creativity and stimulus-free)

1965: Standard Theory or Aspect(deep vs. surface structure, competence vs. performance)

1967: Extended Standard Theory

1970: Revised Extended Standard Theory or Trace

1981: Government & Binding(P/P)

1995: Minimalist

2.2.Concepts in Language Knowledge:

At the late fifties, the dominant approach toward the language was behaviorist and structuralist. structuralist theories of language were not directly concerned with the problem of acquisition. Their major goal was to provide and collect sets of structures, samples of language and to give them the appropriate collocation in the theory of grammar.

The stark contrast between behavioristic approach and generativist(innativism) was the emphasis the latter put over topics such as creativity, the complexity of language

structure and the problem of acquisition. Behaviorism didn't consider grammars as 'mental representation' of a language. Rather, they believed that language was a learned behavior. Bloomfield considered language acquisition as:"…initiated by the child less or more accidentally producing sounds such as: da, these sounds become associated with a particular object such as a doll because of a parent reaction, so the child says da whenever a doll appears".

Doll ⟶ stimulus(specific attribute of situation)

Saying da ⟶ response

Giving a doll ⟶ reinforcement

So the knowledge of language is the product of interaction with environment through a set of S-R conditioning. So, an event in the environment (unconditioned stimulus) brings out an unconditioned response from an organism capable of learning. That response is followed by a consequence event appealing to the organism(reinforcement) and if the sequence of US>UR>PR recurs in sufficient number of times, the organism will learn how to associate its response to the stimulus with the reinforcement." There is no empirical evidence to support the importance of feedback from the environment".(Chomsky,1959)

 For generative grammar, the main goal of linguists operating within theory was, and is, to build a simple and invariable system of rules, recently formulated as principles and parameters, which would define the grammatical sentences of the language. Fundamentally, the shift from structuralism to generativist is determined by the concepts of 'surface' and 'deep' levels of grammatical structure: notwithstanding having very similar surface structure ,two sentences may have very different underlying structures (deep). In other words, there is a level, the 'deep-structure', level which gives an insight

into much of the inherent semantic ambiguity of apparently similar surface sentences. What relates deep structure and surface structure are transformations. For instance consider the following sentences as an example:

1) John is easy to see

2) John is eager to see

Although they have apparent or superficial similarity of the surface structure, the two sentences are very different at deep-structure level. In fact, the former sentence can be paraphrased as:

_ to see John is easy (someone can see John easily)

On the other hand, the latter cannot be re-interpreted as

_*to see John is eager(cause John himself is the perpetrator of action)

Because it is ungrammatical. The sentences differ in other respects as well: in sentence (2) the NP John is performing the action (the agent), whereas in (1) it is rather the patient of the action; lastly, in sentence (1) John is the object of the complement verb "see" (the complement verb is in relation to the whole sentence : "easy to see"; the object of the verb complement is the object of VP), whereas in (2) it represents the real subject. In other words, in sentence (2) deep structure and surface structure level are closer than in sentence 1)

2.3.Two Approaches in Language Studies

Chomsky made a distinction between 'externalized language' as opposed to 'internalized language'. Externalized language takes external interaction and communication as the most important function of language. It is accompanied by American structuralist tradition (especially Bloomfield). They aimed at gathering samples of language and then

describing the grammar of the sentence which is produced by the speaker. In the externalized language approach, "the construct is understood independently from the properties of the mind/brain" (Chomsky, 1982). It emphasized on physical manifestation of language as a social phenomenon:

"language is a system of actions and behaviors, a grammar is a collection of descriptive statements concerning the E-language"(Bloomfield, 1957). So its concerns is more pertained to sociolinguistics and discourse analysis, because it relates language to the situation and social relationship. This approach is also in line with the work of Joseph Greenberg (1966)who took an implicational universal approach or statistical universals. it attempts to discover a typology of the languages of the world by seeing what they have in common, e.g.: accessibility hierarchy which is based on a series of positions for relativization

Sub>obj>IO>object of preposition>genetive>object of comparison

This type of implicational universal is based on observation of many languages, so its data driven and a single language as an exception could be their downfall. At stark contrast to those people mainly concerned with the social or educational aspect of language, generative grammar and more specifically I-language approach is more concerned with the mental structure of mind and knowledge of language as an internal property of human mind: with what speaker knows about the language:

"E-language, if it exists at all, is derivative, remote from the mechanism and of no particular empirical significance. the statements of a grammar are statements of the theory of mind about the I-language, hence statements about structures of the brain formulated at a certain level of abstraction from mechanisms" (Chomsky, 1986).

Thus, E-language collects samples of actual speech or actual behavior: the evidence is physical manifestation. On the other hand I-language invents possible and impossible sentences: the evidence is whether speaker knows if they are grammatical or not(grammatical judgment, more intuitive). Universals within UG are theory-driven: they may not be breached but they need not be present. the type of approach adopted by generative theory assumed the idealization of a "homogeneous speech-community":

"Linguistic theory is concerned primarily with an ideal speaker listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance" (Chomsky, 1965).

From Chomsky's point of view: linguist is not interested in any particular language, rather he is more interested in the language faculty of human species.

Below, you can find a summarized list of difference between the two approaches:

I-Language Approach	E-Language Approach
1-internal rule and principle	communication and interaction
2-language is a mental phenomenon	physical manifestation of language
3-competence	performance
4-knowledge of language(mind)	actually spoken language
5-linguitic-oriented	discourse and sociolinguistic-oriented
6-language is innate and genetically in us	language is an action and learned behavior

2.4.Levels of Adequacy

In the early days of LAD emergence, the aims of linguistic science was categorized in three levels of adequacy:

"...there are two respects in which one can speak of 'justifying a generative grammar.' On one level (that of descriptive adequacy) the grammar is justified to the extent that it correctly describes its object, namely the linguistic intuition - the tacit competence - of the native speaker.... On a much deeper and hence much more rarely obtainable level (that of explanatory adequacy), a grammar is justified to the extent that it is a principled descriptively adequate system in that the linguistic theory with which it is associated selects this grammar over others, given primary linguistic data with which all are compatible".

1- Observational Adequacy:

A theory is observationally adequate if it can deal with the basic facts observed in samples of language, e.g.: primary linguistic data: you see a sentence and you determine whether it is grammatical or not.

2- Descriptive Adequacy:

A theory has descriptive adequacy if it deals properly with the linguistic competence of the native speaker: the generative grammar that comes out of LAD. Description is more articulated than a mere observation. In order to have a description, one already needs something that resembles a theory, something that has the property of a theory: coherent, falsifiable, testable etc; thus, "a grammar constructed by a linguist is 'descriptively adequate' if it gives a correct account of the system of rules that is mentally represented, that is, if it correctly characterizes the rules and representations of the internally-represented grammar" (Chomsky, 1980). In other words, a descriptive adequate grammar

presents a set of rules that correctly produces all, and only, the observed facts and the observable behavior of a native speaker.

3- Explanatory Adequacy:

A theory is explanatory adequate if it can provide a principled reason: why linguistic competence takes the form it does. So it should be able to explain the link between a primary linguistic data and a competence contained principles and parameters. Explanatory adequacy is more concerned with internal structure of the device and providing a principled basis, independent of any language." explanatory adequacy... is essentially the problem of constructing a theory of language acquisition, an account of the specific innate abilities that make this achievement possible" (Chomsky,1981). The problem of explanatory adequacy relates linguistic theory to the problem of learnability, namely, the problem of giving an explanation of what makes language learnable.

2.5.The Language Faculty*(LAD)*

The traditional views concerning language acquisition considered this phenomenon as a matter of imitation and reinforcement, a kind of 'habit formation'. According to this view, the child would learn linguistic forms by a process of analogy with other forms. This idea was totally rejected by Chomsky. Many observations and studies indicate that the child cannot acquire a language only by relying only on a process of analogy. By no means this theory can justify or explain some concepts like: richness of language, creativity and the complexity of language, giving the limitations of data actually available to the child.

The generative grammar attempts to measure up such shortcomings by postulating the existence of some kind of inborn, hard-wired, cognitive mechanism governing and permitting the acquisition of language, the 'language acquisition device' (hereafter called: LAD). We can not deny the role of incoming data and the input from the outside

environment. In order to pick up a language, children need to have access to the incoming data, but just as an activator, they are also in need of a mechanism that permits them to process the data they are exposed to.

"Having some knowledge of the characteristics of the acquired grammars and the limitations on the available data, we can formulate quite reasonable and fairly strong empirical hypotheses regarding the internal structure of the language-acquisition device that constructs the postulated grammars from the given data"

(Chomsky, 1968).

LAD is a built-in structure or language faculty ,as Chomsky says:" a procedure that operates on experience acquired in an ideal community and constructs from it. The knowledge that emerges from it consists of a grammar couched in principle and parameter :structure-dependency, projection principle, binding principle…

There exist three classes of innate ideas into LAD: (Razmjoo,2005)

1- Substantive idea

2- Formal idea

3- Constructive idea

There is agreement among linguists that the process of acquiring a language is very peculiar and complex. There is, however, not much consensus about the nature of the mechanism which governs it. In particular, various proposals have been made about the nature of the LAD and its psychological basis.

2.6.Theories against LAD:

There are three dominant theories concerning the mechanism of mind in the development of language:

1- domain-general = constructivism (Piaget)

2- Innatism-modularity = cognitivism (Chomsky)

 3- post constructivism or neo-piagatian = (Karmillof-smith)

1- Piaget: Constructivism

There is a unitary or general intelligence system which accounts for all types of learning. Piaget viewed language acquisition within the context of child broader intellectual development. He proposed some distinctive, successive stages of development which emerge one after another and each stage is accompanied with the manifestation of more sophisticated logical operation and cognitive skills.

Criticism:

Constructivism(developmental stage) failed to account for: while very specific ability are affected, the rest of cognition remains unaffected. erg: a retarded man who can not count up to 4 can speak 10 languages fluently and clearly, so he is safe in the knowledge of language but unable in the world knowledge.

2-Chomsky and Fodor: Modularity

Fodor in 1983 proposed modularity of mind and Chomsky in 1981 suggested modularity of language(UG) (under the discussion in modularity section)

Criticism:

It failed to account for the developmental process of mind: if modules presented at birth, how does cognition change?

3-Annet Karmiloff-Smith: Modularization

Karmiloff-Smith proposed a synthesis between constructivism and nativism. In her book:" Beyond the Modularity", karmiloff-Smith presents the idea of Modularization:

"Cognition begins as general , but certain, specific activities become differentiated ,localized in the brain. so learning a language is not linear or in stages, it is U-shaped: contains backsliding: temporary deterioration of performance….."(Karmillof-Smith,1998)

She rejects the constructivism for overstating the external factors and understating the innate knowledge. However, she is not totally convinced by Fodorian strict and rigid structure of mind.

2.7.Brief Outline of UG Theory

 Universal Grammar (UG) contains principles and parameters which constitute the innate cognitive faculty that makes language acquisition possible. Principles are those aspects of language which are universals to all and parameters are defined as: those aspects that vary from one language to another within a certain limits. UG theory tries to minimize the border of responsibility for acquiring a language by a child and narrow down the possible patterns of language to few. It is worthwhile here to note that the syntactic structures are not innate, since they very from one language to another language, the grammar itself is not universal (the very misconception bring out by the label), rather the universal properties are constraints, the rules that dictate what can not be presented in any language rather than the structure itself. e.g.: the subject of subordinate clause never governs the verb of matrix or main clause. So we have a built-in limitation rather than grammar.

"The problem with the theory of innateness is not in deciding whether the theory is true or not because the ability to learn language is certainly inborn, but rather in identifying what is the nature of LAD and what constraints or structural features are hard-wired in

the mind. so the capacity is innate and the structures are acquired through exposure to input."(Lasnik, 2002)

In the previous sections we argued that Chomsky's ideas mostly belonged to two main categories : first, his idea about syntax and second about knowledge of language. Lets examine this ideas in detail. As it was pointed out before, his work on syntax could be traced back to the 1950th . The main issue in linguistics is finding the relationship between external sound and internal meaning. Syntax acts as a bridge and undertakes the role of relating these two interfaces. The theory we are most interested in here, is G/B, so an understanding of its structure and its operation seems inevitable.

D-Structure

Movement

S-Structure

PF   **LF**
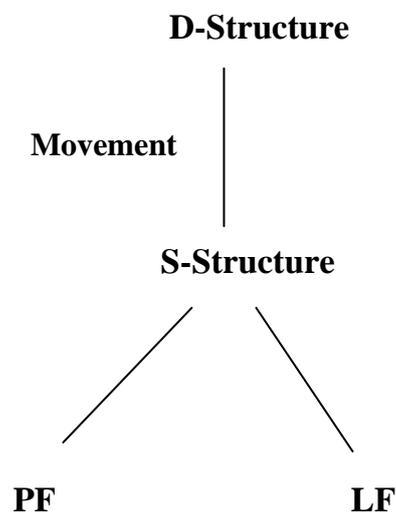
Figure 2.3: Elements of language structure

As you can see, there are two levels of syntactic representation:

1- D-Structure   2- S-Structure

They are originated historically in deep and surface structure of early syntactic theory, but they were specialized within G/B. D-structure is the underlying level at which the elements in the sentence are in their original location before movement. It is where the effect of semantic case can be seen. S-Structure is not just the surface structure of the

sentence, rather it is enriched by traces of movement marking the original location of elements that have moved, and we can insert the syntactic cases(grammatical).

_What are you seeing at the cinema? (surface S)

_What $_1$ are $_2$ you $_{t2}$ seeing $_{t1}$ at the cinema? (S-Structure)

_You are seeing what in the cinema? (D-Structure)

S-Structure is related to D-Structure via movement(Transformation in the earlier theory). But the problem is: in some languages such as Persian, we don't have any movement and for making question form, it is not necessary to move any element to the beginning, so there is virtually no difference between D-Structure and S-Structure and the distinction between the two levels is superfluous. Due to this problem , Chomsky tried to get rid of this two redundant representation in his latest work Minimalist Program. S-Structure is also related to two interface levels: PF and LF. PF grew from "the Sound Pattern of English"(Chomsky and Halle, 1964) and led to the whole movement of Generative Phonology(Rocco,Kestowicz,1989). PF is the realization of sound system. LF represents certain aspects of meaning which is determined by grammatical structure which is called syntactic meaning. So it is not the whole meaning (the full semantic representation). PF and LF constitute the interface between language and other cognitive systems, so are called interface levels.

G/B consists of certain sub-theories as follow:

1- Binding theory: relation between NPs, including a pronoun and its antecedent

2- Bounding theory: places restriction on movement within the sentence

3- Case theory: assigns cases to the NP in the sentence

4- Theta theory : assigns semantic roles to the elements in sentence

5- X-Bar theory: describes phrase structure

UG is a part of the theory of G/B which is concerned with language acquisition and the knowledge of language. The advantage of this model over the other earlier models is that : it can draw an explicit link between language knowledge(competence) and acquisition, so it establishes a connection between grammar and acquisition. It merges them.

LAD = UG   **Core Grammar**   **Competence**

Principle + Parameter   **Input** →   Principle + Lexical parameter   **input** →   Core grammar + Peripheral idiosyncra
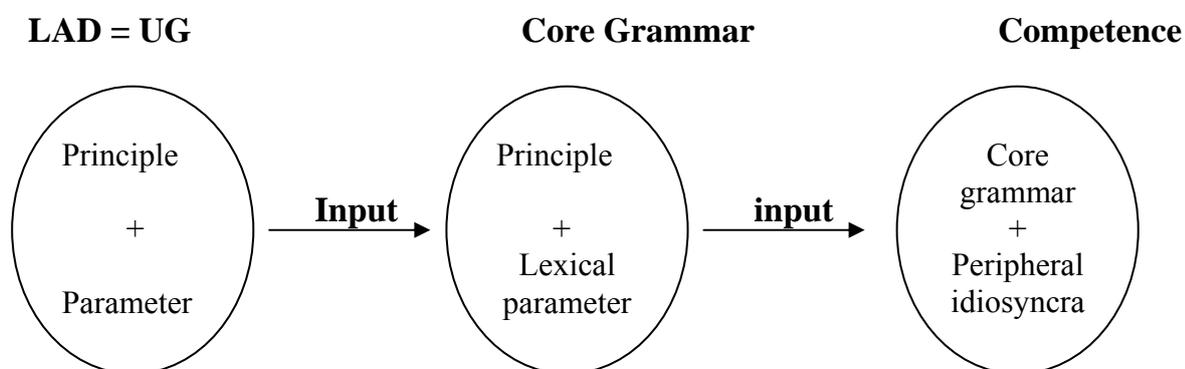
Figure2. 4: Universal Grammar Components

Chomsky (1980) has indicated the operation of UG and its role in language acquisition as follows : "UG consists of a highly structured and restrictive system of principles with certain open parameters, to be fixed by experience. As these parameters are fixed, a grammar is determined, what we may call a 'core grammar'." In this theory, the role of principles (those aspects of languages which are universal properties of syntax common to all languages) is to facilitate acquisition by constraining learners' grammars, that is, by reducing the learner's hypothesis from an infinite number of logical possibilities to the set of possible human languages. The role of parameters (which express the highly

restricted respects in which languages can differ syntactically) is to account for cross-linguistic syntactic variation. That is, UG principles admit of a limited number of ways in which they can be instantiated, namely those allowed by the parameters specifying "possible variation". The linguistic evidence available to the child during acquisition allows him to determine which parameter setting characterizes his language. Parameter setting eventually leads to the construction of a core grammar, where all relevant UG principles are instantiated. This process was schematized in figure 4.

UG in its turn has several subcomponents which are couched in the domain of the principle and the parameter.

1- Structure-Dependency Principle

2- Binding Principle

3- Projection Principle

4- Head Parameter

5- Pro-drop Parameter

In order to give an insight over the operation of these principle and parameters, this section provides an overview over the mentioned-above arguments.

1-Structure-dependency principle

It is a universal principle of language which states: movement depends on structure of sentence. Any operations on sentence such as: movement in making interrogative or passive forms requires the knowledge of internal or underlying structural relationship in the sentence rather than the linear order or sequence of words, so we should move the right element in the right phrase. Thus, moving any word in a particular numbered place in the sequence of sentence can bring out a safe and sound interrogative form. This knowledge is essential in dealing with embedded clauses. Those relative clauses that

contain a subordinate clauses require knowledge of structure-dependency to form question. Lets illustrate the concept by making use of some examples:

1-The cat which is black is Sam

_The cat is black (main clause)

_Which is black (subordinate clause)

What is obligatory here is: the auxiliary verb of main clause governs the relative one, but not the vice-versa. So we need a verb in a right phrase. This issue is true about passive form:

2-The hunter fired the rat

_The rat was fired by the hunter

Here we move the object NP within the VP to the position of subject

(More technical information: based upon NP movement ,there is a link between an A-Position in D-structure and an empty A-position that has neither an actual NP nor an assigned Theta-role. In the above-mentioned example the NP "the rat" is in the A-position of GF object and has the theta-role patient. The GF subject is filled by e and is prevented by the passive morphology from receiving the Agent role. An agent role passed on from the passive morphemes has been assigned to a Prepositional Phrase "by the hunter" which acts as an adjunct to the VP. The passive morphology triggers movement to the empty A-position at the beginning of the sentence and produces the S-structure)

Thus, structure-dependency isn't a feature of particular language, rather it applies to all types of structures found in a language.

2-Binding principle:

One of the topics in traditional grammar was: how pronoun related to its antecedent.

Chomsky 1988:

"Binding principle is concerned with connections among NPs that have to do with such semantic properties as dependence of reference, including the connection between a pronoun and its antecedent".

UG influences the interpretation of sentence. The knowledge of which pronoun refers to which antecedent requires knowledge of clause structure: which part is relevant and which is not. there are 3 classes of words:

1- anaphor (reflexive pronoun and reciprocal)

2- pronominal

3- referring expression

Anaphors always have the antecedent in the sentence than outside it. It must refer to someone mentioned within the same part of the clause. on the contrary, pronominal must refer to someone who is not mentioned within the immediate context, rather it should hint to an antecedent outside the same clause, someone who is not directly mentioned in the context. Referring expressions are always free to refer to someone outside the context.

We have also three lines of subcomponents in this theory:

Principle A: An anaphor is bound in its governing category: there must be a C-commanding NP co-indexed with the anaphor

Principle B: A pronominal must be free in its governing category, there should be no C-commanding NP co-indexed with it

Principle C: A referring expression is always free

Lets clear the clouds by taking benefits of some instances:

_ John $_i$ says: the manager will fire him$_{i/j}$

The word "him" is a pronominal , so it can not refer to :"the manager" which is located in the embedded clause. It is ambiguous: it could refer back to the subject of main clause (antecedent of another clause), or it could be someone outside of the sentence.

Now, take this one:

_ John says: the manager $_i$ will fire himself $_i$

Here "the manager" and "himself" are co-indexed. Thus, they should refer to the same person(according to the principle A). In these two examples "John" is referring expression.

3- Projection Principle:

Every speaker of a particular language knows what the words in his language means, sounds and how they are used. This theory attempts to integrates the syntactic description with lexical items or as Chomsky says:" lexical items of the mental lexicon". Projection principle requires the syntax to accommodate the characteristics of each lexical items and restricts the occurrence of words in specific construction. Thus, it urges the lexical item to be presented in every levels of syntactic structure to satisfy lexical entry (syntactic levels include: D-structure, S-structure, LF. PF is exceptional)

_ Mary bought a book

The verb "bought" is transitive, so it should be followed by an NP.

(More technical information:" bought" is a predicate which assigns two theta-roles to its argument:1- Agent to Marry   2- Patient to a book   (S-selects)

It also C-selects an NP   bought [_NP]

Syntax is based on the lexicon in the sense that the specification of lexical items project onto the syntax rather than having to be specified in rules.

4-Head Parameter

Parameter refers to variation in the word order. Head is the most important element in each phrase. Every phrase consists of head + complement. This parameter concerns the position of head within a phrase. A particular language has the heads of the same type on the same side of the complement in all phrases(although some languages like Persian exhibits variations). The variation is limited to choice between two possibilities

Head left (or head –first, preposition)   Head right (head-last, postposition)

English is Head left: NP(N), VP(V), PP(P)….

But in Persian we can not state in a determinative way : whether all sentences are head-first or head-last.

5-Pro-drop Parameter

Pro-drop parameter indicates whether a language can have a declarative finite subject or without an apparent subject.

Italian , Arabic, Persian………pro-drop

German, French, English………..non-pro-drop

Pro-drop or null-subject language permits both

A: subjectless sentence

B: inverted declarative

According to Extended Projection Principle (all sentences must have subjects), so the null- subject sentence treated as having an empty category in subject position rather than having no subject at all . Pro is an empty category that doesn't appears in the surface of the sentence.

2.8.Availability of UG

The leading idea of this thesis is that UG might play a role in second language acquisition as well as in first language acquisition. There are some advantages in considering second language acquisition from the point of view of UG. many L2 researchers wondered how similar and how dissimilar L1 and L2 acquisitions are and whether inborn knowledge is also used in L2 acquisition. These questions are so appealing. There is now a controversial debate about what aspects of 'Universal Grammar' are available to second language learners as well as first language learners. The new view suggests that UG is also available in L2 acquisition, so, many studies now are testing whether the properties of UG that seem to play a role in L1 acquisition are also playing a role in L2 acquisition. The crucial variable in this context is represented by age. In fact, linguists assume that no difference between first and second language acquisition arises if a foreign language is acquired within a 'critical' age (i.e. the early teens). Thus, the terms 'first' or 'second' language do not make reference to the number of languages acquired, but rather to the point in cognitive maturation when the process of learning takes place. In this work, reference to 'second language' will be made in this sense, where the word 'second' includes the notion 'adult'. We would address five possible roles of UG in ASLA:

Five possible roles for UG in adult SLA:

1-Full transfer/partial or no access

2-Full transfer/full access

3-No transfer/full access

4-Partial transfer/full access

5-Partial transfer/partial access

1-Full transfer/partial or no access

The initial state of L2 learning is the L1 final state. Access to UG is via the L1, so if the UG principle is not available in the L1 it is not available in SLA.
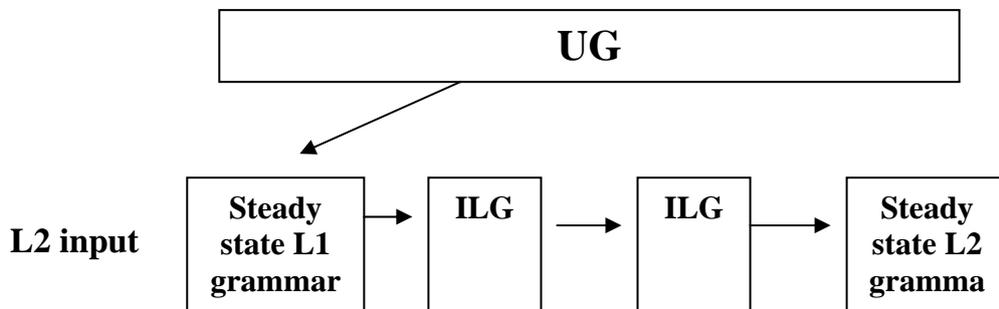
Figure2.5 : **Full transfer/partial or no access**

2-Full transfer/full access

Starting point of L2A is L1 final state but assumes availability of UG.
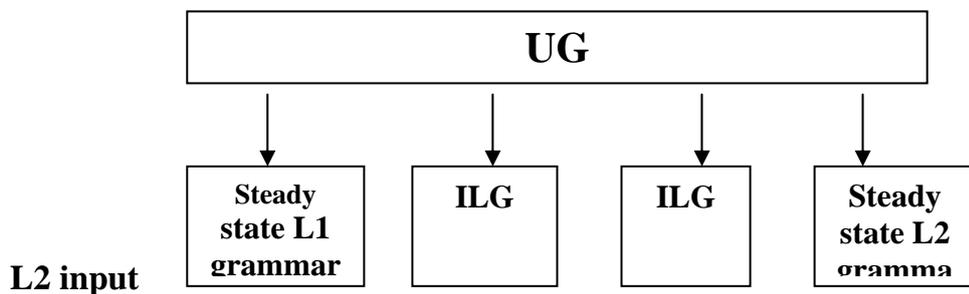
Figure 2.6.Full transfer/full access

3-No transfer/full access

Starting point of L2A is UG. L1A and L2A proceed in the same way (Epstein, Flynn, & Martohardjono, 1996).

L2 input
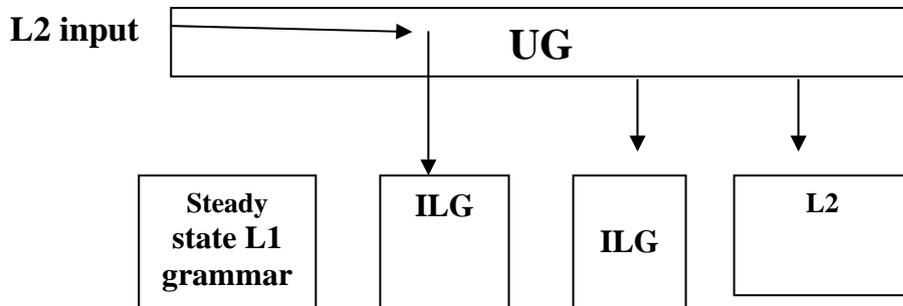
Figure 2.7.No transfer/full access

Evidence for no transfer/full access: **Flynn (1987)**

1- Re-setting the head parameter .

A: Preposed left-branching complement [_]   Japanese L1

_ [When the actor finished the book], the woman called the professor.

B:Post-posed right-branching complement   English L1

_ The worker called the owner [when the engineer finished the plans].

"In elicited imitation studies, beginning L1 Japanese ESL learners did not find preposed sentences significantly easier than postposed sentences and more advanced learners showed a significant preference for postposed over preposed sentences. This is taken as evidence that UG is available to these learners."   Flynn, 1987

4-Partial transfer/full access

Different properties are available through the UG and L1

```
                              UG
L2 input

  Parts of        ILG         ILG          L2
  Steady
  state L1
  grammar
```
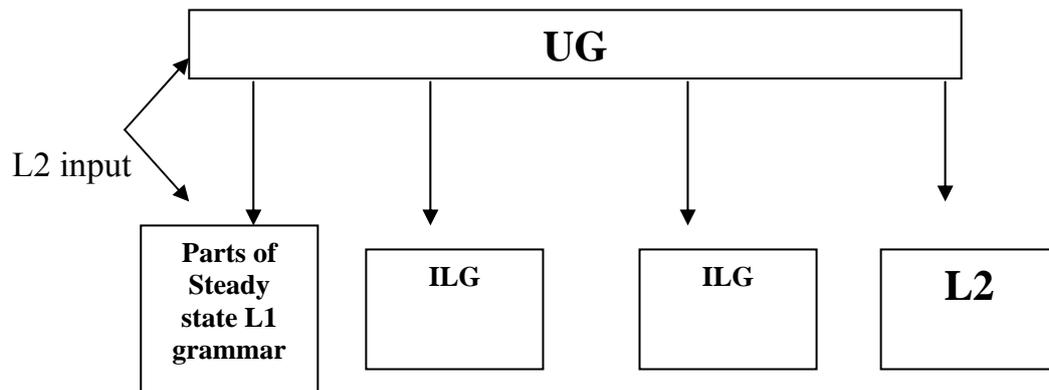
Figure 2.8.Partial transfer/full access

5-Partial transfer/partial access

Only parts of the L1 grammar is available. Ultimate attainment of an L2 is not possible.

```
                              UG
L2 Input

  Parts of     ILG      ILG          Steady
  Steady                             State
  state L1                           ILG
  grammar
```
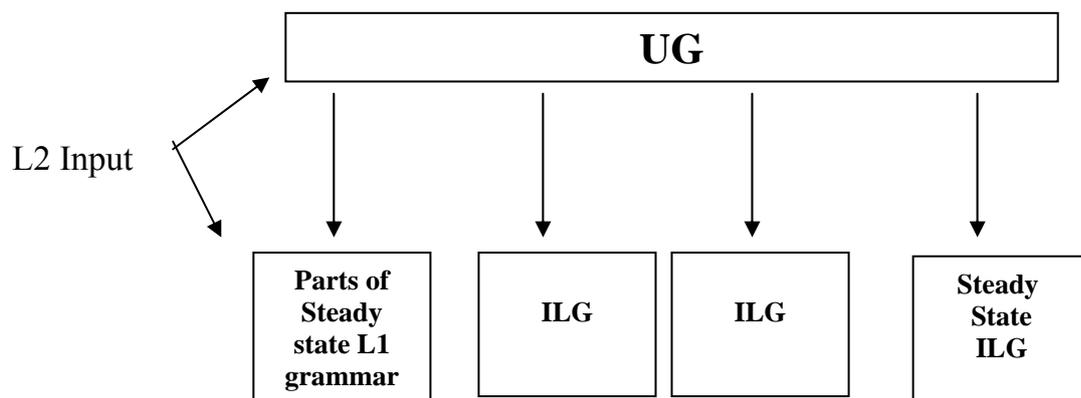
Figure 2.9.Partial transfer/partial access

2.9.Previous Research

In this section, we provide you with a brief outline of the previous research regarding
"reappraisal of the poverty of stimulus argument" and "accessibility of UG". they
approached this question in the context of structure dependence in language acquisition,
specifically in relation to auxiliary fronting in interrogatives.

Children only hear a finite number of sentences, yet they learn to speak and comprehend
sentences drawn from a language that can contain an infinite number of sentences.
The poverty of stimulus argument suggests that children can not acquire their complex
system of language(syntax) only from data(the sentences they hear) available to them..
Thus, learning a language involves generalizing an available, correct grammatical rule to
the unexpected situation(a genuine one) . One of the most used examples to support the
poverty of stimulus argument concerns auxiliary fronting in interrogatives. Declaratives
are turned into questions by fronting the correct auxiliary. Thus, for example, in the
declarative form '*The man who is hungry is ordering dinner*' it is correct to front the
main clause auxiliary as in 1, but fronting the subordinate clause auxiliary produces an
ungrammatical sentence as in 2 (Chomsky, 1965).

1. *Is the man who is hungry ordering dinner?*

2. **Is the man who hungry is ordering dinner?*

Children can generate two types of rules: a structure-independent rule where the first *V* is
moved; or the correct structure-dependent rule, where only the movement of the
V from the main clause is allowed. Crucially, children do not appear to go through a
period when they erroneously move the first *is* to the front of the sentence (e.g., Crain &

Nakayama, 1987). It has moreover been asserted that a person might go through much of his or her life without ever having been exposed to the relevant evidence for inferring correct auxiliary fronting (Chomsky, in Piatelli- Palmarini, 1980).

The absence of evidence in the primary linguistic input regarding auxiliary fronting in interrogatives is not without debate. Intuitively, as suggested by Lewis & Elman (2001), it is perhaps unlikely that a child would reach kindergarten without being exposed to sentences such as 3-5.

3. *Is the boy who was playing with you still there?*

4. *Will those who are hungry raise their hand?*

5. *Where is the little girl full of smiles?*

These examples have an auxiliary verb within the subject NP, and thus the auxiliary that appears initially would not be the first auxiliary in the declarative, providing evidence for correct auxiliary fronting. Pullum & Scholz (2002) explored the presence of auxiliary fronting in polar interrogatives in the Wall Street Journal (WSJ). They found that at least five crucial examples occur in the first 500 interrogatives. These results suggest that the assumption of complete absence of evidence for correct auxiliary fronting is overstated. Nevertheless, it has been argued that the WSJ corpus is not a good approximation of the grammatical constructions that young children encounter and thus it cannot be considered representative of the primary linguistic data. (Legate & Yang, 2002).

Crain & Nakayama (1987) conducted an experiment designed to elicit complex *aux-*questions from 3- to 5-yearold children. The children were involved in a game in which they asked questions to Jabba the Hutt, a creature from Star

Wars. During the task the experimenter gives an instruction to the child: *'Ask Jabba if the boy who is watching Mickey Mouse is happy'*. Children produced sentences like a) *'Is the*

boy who is watching Mickey Mouse happy?' but they never produced sentences like b) *'Is the boy who watching Mickey Mouse is happy?'*. The authors concluded that the lack of structure-independent errors suggested that children entertain only structure-dependent hypotheses, supporting the existence of innate grammatical structure.

MUG test is a particular test which was developed by Vivian Cook (1996)in order to prove the innateness of structure-dependency and accessibility to UG. he indicated that:L2 learners of English would never commit some errors like:

*Is Sam is the cat that black?

He chose Japanese learner as his subjects. the results confirmed the hypothesis. we can come to this conclusion that: most of the experiment in this field supports the hypothesis. So, conducting an experiment with a language other than Latin seems to be quite intriguing.

CHAPTER 3

Methodology

3.0.Introduction

When linguists start proposing some models, the models themselves suggest the way of observing new data. In order to choose between different sensible hypotheses one has to look carefully at the data. There is always a dialectic between the theory and the gathering of data. The reason for gathering the data is to test the hypothesis of the theory. The data one gathers may change the theory, but at the beginning there is the theory.

That is the way a deductive model works. Researchers, working in UG paradigm prefer this model to the inductive model. An inductive model presupposes that the senses, which are limited, can discover a sort of model directly from reality. With this sort of model the chances of discovering something of great interest are rare.

The more interesting the phenomenon one observes, the less profound the observation is going to be, if one uses the senses alone. In reviewing some current research on language acquisition, it soon became clear that there exist two levels of discussion.

One level considers the 'logical problem' of language acquisition, 'Plato's problem', cognitive maturation. Another level is that of a more concrete analysis and discussion of empirical data about principles and parameters. In order to make sensible questions and to answer them in a convincing way one has to look carefully at the data. The present work reflects this twofold approach of addressing the same issue.

In this study, the researcher put the issue of structure-dependence to an empirical test in an experiment with Persian adolescents and tested the acquisition scenario offered by

generative grammar and the UG-based language acquisition theory. In the earlier chapters of this research, it was hypothesized that " L2 acquisition is guided by UG" : L2 learners also use the structure-dependent yes/no question formation rule. You can notice three lines of argument in this hypothesis:

1. L2 acquisition equals to L1 acquisition(they don't differ from each other)

2. LI acquisition is guided by a UG principle: structure-dependence

3. L2 acquisition is also guided by a UG principle, structure-dependence as in *L1*.

3.1.Participants

Persian learners of English as their foreign language were selected for this research. The subjects are supposed not to have learned the sentences containing relative clause before, because their experience in learning English is of importance in this experiment. The researcher chose 30 students at the ninth grade as our subjects. All of them were female and their age was around 14-15 . Their scores on English subject manifested that they are good at English. So the researcher chose those students whose scores in English were high (e.g.: higher than 17). The criteria in selecting the subjects were somehow clear: the researcher chose high-achiever students and those who hadn't had any extra- training outside of school and their age was 14.

3.2.Educational Background

According to the Education Department of Iran , Persian learners of English formally begin to study English at junior school (around the age of 13). The type of material

development and syllabus is mostly based upon grammatical–syllabus(the materials are organized around grammatical complexity. Each grammatical structure is presented one at a time in a cumulative manner). Following this syllabus, the learners are first exposed to simple present sentence. Step-by-step they move toward more difficult structures. The learners are supposed to learn the interrogative forms at the early stages of language learning. But learning the relative clause is postponed to the second grade of high school, when they are about 16 years old.   Since the relative clause is more complicated , it is studied at the higher levels. Considering the fact that the students do not encounter the relative clause until they are in the second grade, we became positive that it was their first exposure to relative clauses. what makes this experiment quite intriguing is : the rule of making questions from the declarative sentences in Farsi differs considerably from that of English. This point indicates that: the rule in L1 (Farsi) question formation does not affect the rule manipulation in L2 (English).

3.3.Instrumentation

First of all the researcher set up an interview session. The aim of this phase was to secure that non of these students participated in private institution before (since the students were supposed not acquiring this structure before, absence of relative clause knowledge was of vital importance). During the interview, the researcher asked them whether they had ever attended at any institution or not? Then the researcher gave them a pretest to asses their ability in question-formation out of simple declarative sentences. It took 15 minutes and all subjects passed the test successfully. pre-test was consisted of 12 declarative sentences and asked the students to provide the correspondent construction .

During the instruction, the medium was English. Some pictures were distributed among subjects which contained some characters ,each of them performing specific jobs. The researcher also used two tests called: Double-test . Each had specific aim and structure. Detailed information about these two tests can be found in appendices.

3.4.Procedure

30 subjects at first grade of high school were selected to take part in this experiment. The whole project was divided into three phases.

Phase 1-introduction (instruction)

Phase 2-recognition and use (the first version of double tests: syntax test)

Phase 3-adoption of UG principle(structure-dependence) in Q/F test

At first, a 60-minute training session was held, in which the subjects were taught about the sentence with a relative clause within it. The aim of this phase was to familiarize the learners with relative clause structures. The students were offered some pictures. Then the teacher began to describe the characters and made sentences with embedded clauses utilizing available simple sentences in English . The second round of training session was mostly based upon repetition . The teacher asked the students to repeat what she had said . She also asked some question about the pictures and the subjects responses were just limited to 'yes' or 'no ' . Then the researcher moved to the third session of teaching relative clauses . After some practice, some of the sentences were written on the board . The medium of instruction was English with some use of Persian where necessary. The students were also instructed to give equivalence(translation).

The second phase of the study was triggered by a test called: "Syntax Test" as an exercise on the relative clause they were just introduced to. The researcher held some diagnostic sessions and provided the learners with some extra-exercises. Then the researcher moved to the last part of the research that was: "Question Formation Test". So the learners just needed the input(sentences with relative clause), since the principle of structure-dependence is innate, therefore they were not in need of any explanation about avoiding the error. Phase 2 and 3 were indispensable since each complex sentence has a relative clause as the subordinate clause attached to the subject NP. It was indispensable to use two types of tests, the first test is called "Syntax Test", and the second was called : "Question Formation Test".

We predicted that when L2 learners acquired knowledge of the relative clause structure they would make a true response to each of the complex sentences; if they have not, they will not.

Type of Test	Pass	Fail
Syntax Test	X	–
Question Formation Test	X	–

Figure3.1 Double Tests

(adopted from Otsu & Naoi,1986)

3.5.Phase one: Training Session

The researcher set up our experiment with 30 students in first grade of high school. In order to eliminate any extraneous factors, they were interviewed whether they had any extra-course in English or not(e.g. : in a private institution). Then the teacher triggered a series of training sessions. The training session divided to three 60_minute sessions. Each phase was accompanied with specific kind of teaching and aims. The first session was begun with asking students about simple question-formation . The type of sentences which were used were in the following forms:

1- a. The man is a teacher
    b. The policeman is tall
    c. The ball under the bed is blue

 In order to be sure that the subjects were able to perform the task, the researcher utilized a pretest and asked them to make the question forms of simple sentences . This activity took about 10 minutes. The researcher went on by distributing some paper containing pictures. Each picture contained two simple declarative sentences. The sentences were merged and made a compound sentence , consisting of a main clause with an embedded clause(relative clause).

The teacher read and the students just listened. After some practice , the teacher gave them some pictures with some hints and asked them to do the same : making sentence containing relative clause. The first training session ended with checking the answers of students.

In the second session, the researcher devoted 10 minutes to ask about previous lesson. the students were ready to be instructed about making question form out of declarative. In the first session , the researcher taught them just about constructing statements containing relative clause. In the second training session, they learnt question formation. This phase was heavily based upon reading by teacher and repetition by students. She (teacher) showed some pictures to students and asked some questions . The subjects simply had to answer with: "Yes" or "No".

Two specific points should be noted here. First, the teacher didn't use any 'grammatical terms' such as 'NP' or 'subject of sentence' etc. Because it may raise subjects' conscious working on the grammatical manipulation. Second, the type of sentences used in the introduction was different from that used in Test 2. Sentences were limited to the type in which the relative clause was attached to the NP within VP, such as:

1- Can you see the boy that is standing on the stool?
2- I know the girl that is skating over there.

It's a kind of compound sentence attached to each other by using a relative pronoun. So we aren't allowed to bring an embedded clause within the sentence itself (attached to the subject NP).

The practice lasted for 30 minutes. In the remained 30 minutes, the subjects were asked to make questions out of some pictures containing hints (for e.g. : can see/ the woman / is playing the piano) . In the third session, they were posed to some sentences

containing a relative clause, which made another occurrence of an auxiliary within each sentence.

1- a. the ball that is under the bed is blue
   b. The man who is teaching is tall.
   c . The girl who is dancing is pretty.
   d. The man who is tall is teaching the subject.
   e. The book that the student is reading is interesting.
   f. The boy who is being kissed by his mother is happy.

Here again, it should be noted that: the sentences contained two auxiliary of the same type : "can-can" or "is-is". The teacher used the board and wrote the sentences and also utilized more complicated sentences and structures that the learners then were encountered with the following examples at the test 2:

The man who is tall is a teacher

The sessions were ended at this point: some Farsi sentences were given and the subjects were asked to give English equivalence for each of them. Now it was the time for conducting the double-test.

Three types of errors were predicted:(and observed them except the third one)

Error 1: prefix Error

Contains an extra occurrence of an auxiliary

Error 2: Restarting Error

Contains a Pro-form, using two interrogatives

Error 3: Structure-Independent Error

Move the auxiliary verb of subordinate-clause

In order to make it more understandable, lets bring some examples for
each types of errors
E1: *Is the man who is working hard is married?

E2: *Is the man who is teaching English, is he tall?

E3: *Is the cat that black is Sam?

The lack of E3 in this experiment recommends that the learners didn't adopt a structure-independent rule. In order to become familiar with Farsi language , lets consider the question formation in Farsi. Farsi question-formation differs from that of English in that in Persian movement is not involved in making a question from the declarative sentence. The word **"aya"** added to the beginning of a given declarative makes it a question. Below is a statement which is converted to an interrogative:

6-   Donya mitavanad ketab   bekhanad.
        sub   auxil   obj   v
        Donya can read the book.

7-**Aya** Donya   mitavanad ketab   bekhanad?
         sub   auxil   obj   v
        Can Donya read the book?

So, it can be observed the Persian question formation rule cannot reflect the English question formation rule at all. It's a very vital issue and an integrated part of this study, since the Persian learners of English do not have access to similar rules that could enable them to utilize any analogies in dealing with the English yes/no question

3.6. Phase Two: Syntax Test

In order to test learning of relative clause, four kinds of sentences were used. In this phase, the subjects were asked to translate some sentences. The subjects were required to give a written English equivalent for each Persian sentence, using the relative clause. It is important that none of the relative clauses was attached to the subject NP in each sentence but rather to the NP within the VP.

1-Benyamin sagi ra doost darad ke dar hayat midavad
   Benyamin likes the dog **[** that is running in the yard**]**

2- Yashar doosti darad[ke mitavanad football bazi konad]
   Yashar has a friend **[**that can play football**]**

The subjects didn't seem to have any problem with such a task since they were frequently encountered such exercises at school and plenty of such activities in third round of training session. Any local errors or mistakes were not counted. The focus was on the relative clause itself, and the errors that would not seriously affect the content conveyed were taken as correct (e.g. errors in inflection or tense).

3.7. Phase Three: Question Formation Test

twelve declarative sentences were utilized in this test, four of which were simple sentences (2), (5), (8), (11), and all the rest were complex sentences with relative clauses attached to the subject NP's.

The relative **that** of the subject case was used in order not to cause extra difficulties due to case differences (although subjects done well with other relative pronoun).

(1)   The man that is playing the guitar can dance. (c)

(2)   The girl can read aloud. (filler)

(3)   The man that can sell the books is *singing now*. (c)

(4)   The girl that can swim can jump high. (b)

(5)   The cat in this room is eating. (filler)

(6)   The girl that is cooking is smiling. (a)

(7)   The boy that is skating is smiling. (a)

(8)   The girl is walking now. (filler)

(9)   The girl that can skate well is singing now. (c)

(10)   The girl that is singing can swim fast. (c)

(11)   The man in the room is cooking. (filler)

(12)   The boy that can jump can run fast. (b)

In this test, two types of auxiliaries were used:" is" and "*can"*. The sentences were arranged in three logical patterns :

A: is-is pattern (similar auxiliaries in a single sentence)

B: *can-can* pattern (two occurrences of can in a single sentence)

C: is-can or *can-.is* pattern (two different auxiliaries)

 Patterns A & B have a serious flaw; one cannot tell which auxiliaries: "is" or "*can" is* moved as in the Error type1. They can make the question either by moving V from the relative clause or from the main clause. This is why pattern C is necessary.

CHAPTER 4

4.0. Results

All the responses provided by the subjects on Syntax Test were reported to be structure-dependent .There reported some errors, but they were not structure-independent. There were also some mistakes in spelling, tense and so forth , but they were neglected since the content was preserved. The practice in the training session had a positive effect, since there was a high rate of success.

Table 4.1 :Question- Formation Test Result

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
S1	T	T	T	T	T	N	T	T	T	T	T	N
S2	F	T	F	T	T	T	F	T	N	T	T	F
S3	T	T	T	N	T	T	T	T	N	T	T	N
S4	F	T	N	F	T	N	T	T	F	F	T	F
S5	T	T	T	N	T	T	T	T	T	T	T	T
S6	T	T	T	T	T	T	T	T	T	T	T	T
S7	T	T	T	T	T	T	T	T	T	T	T	T
S8	N	T	T	T	T	T	T	T	N	T	T	T
S91	F	T	F	F	T	F	F	T	F	F	T	F
S10	T	T	T	T	T	T	T	T	T	T	T	T
S11	T	T	T	T	T	N	T	T	T	N	T	T

S12	T	T	T	T	T	T	T	T	T	T	T	T
S13	T	T	N	T	T	T	T	T	T	T	T	N
S14	T	T	T	T	T	T	T	T	T	T	T	T
S15	T	T	T	T	T	T	T	T	T	T	T	T
S16	F	T	F	F	T	F	F	T	N	T	T	N
S17	T	T	T	N	T	T	T	T	T	T	T	T
S18	T	T	T	T	T	T	T	T	T	T	T	T
S19	T	T	N	T	T	T	T	T	N	T	T	T
S20	N	T	T	N	T	T	F	T	F	F	T	T
S21	T	T	T	T	T	T	T	T	T	T	T	T
S22	N	T	F	F	T	F	T	T	N	T	T	T
S23	N	T	T	T	T	T	N	T	T	T	T	T
S24	T	T	T	T	T	T	T	T	T	T	T	T
S25	T	T	T	T	T	T	T	T	T	T	T	T
S26	T	T	T	T	T	T	T	T	N	N	T	T
S27	F	T	T	F	T	T	F	T	T	F	T	F
S28	T	T	T	T	T	T	T	T	T	T	T	T
S29	T	T	T		T	T	T	T	N	N	T	N
S30	F	T	T	T	T	T	F	T	F	N	T	T

The Abbreviations used in the above table:

S: students

T: true answer

F: false answer (but structure-dependent)

N : no answer

I: incorrect answer (structure independent)

Q: question

4.1.Data Analysis:

Almost all of the subjects provided dependent-structure answers(22 out of 30). Although the other 8 students responses were not fully correct, they didn't violate structure-dependency, so they were considered as" Learner Strategy Error". The types of errors which were observed in question-formation test could be classified into four main groups.

1- Extraposition

Two of the learners committed learner strategy error like the following example:

The girl that can skate well is singing now.
Can the girl skate well that is singing now?

Extraposition is the process of moving a word, phrase, or clause to a position in a sentence which is different from the position it usually has. In this response, the relative

clause is extraposed . It was not considered as an ungrammatical respond, since the subject didn't move the auxiliary of subordinate clause .

2- Conjoining:

There was another kind of error which was dealt with as learner strategy error. they used a conjunction **"and"** in order to make a question-form. Conjunction is: "a word is used for the linking together of words, phrases, or clauses , etc., which are of equal status" (Longman Dictionary. P:106)

> The girl that is singing can swim fast
> Is the girl singing and can she swim fast?

Two students out of eight chose this alternative.

3- Juxtaposition

Juxtaposition is: the act of positioning close together (to situate side by side; place together) . This error had the most frequent occurance,3 subjects out of 8 preferred choosing this strategy. Below, find an error provided by one of the subjects:

> The man that can sell the books is singing now
> Is the man singing now? can the man sell the books?

4- Deletion:

The most interesting error belongs to this category. The auxiliary within the VP moved to the front of the sentence, but the relative clause itself is absent in each question. The subjects prefer to delete the relative clause but not committing structure-independent error.

The man that is playing the guitar can dance.
Can the man dance?

These are the major errors observed in this experiment. The researcher concentrated on those subjects who committed errors and made some responses which were considered as LSE(Learner Strategy Error). The errors were carefully examined and categorized as the errors mentioned above.

%72.6

%22.4

No Error
Reported

G   **LSE**   **S-I**
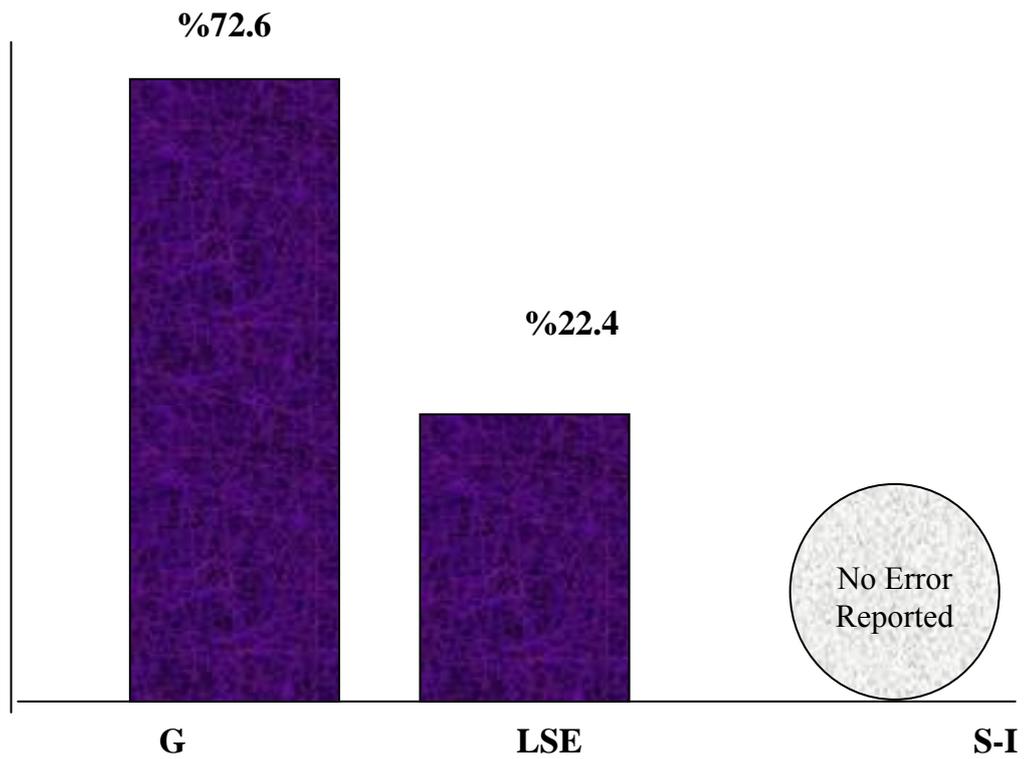
Graph 4.2.Grammaticality of answers

G: grammatical   LSE: learner strategy error   S-I: structure-independent
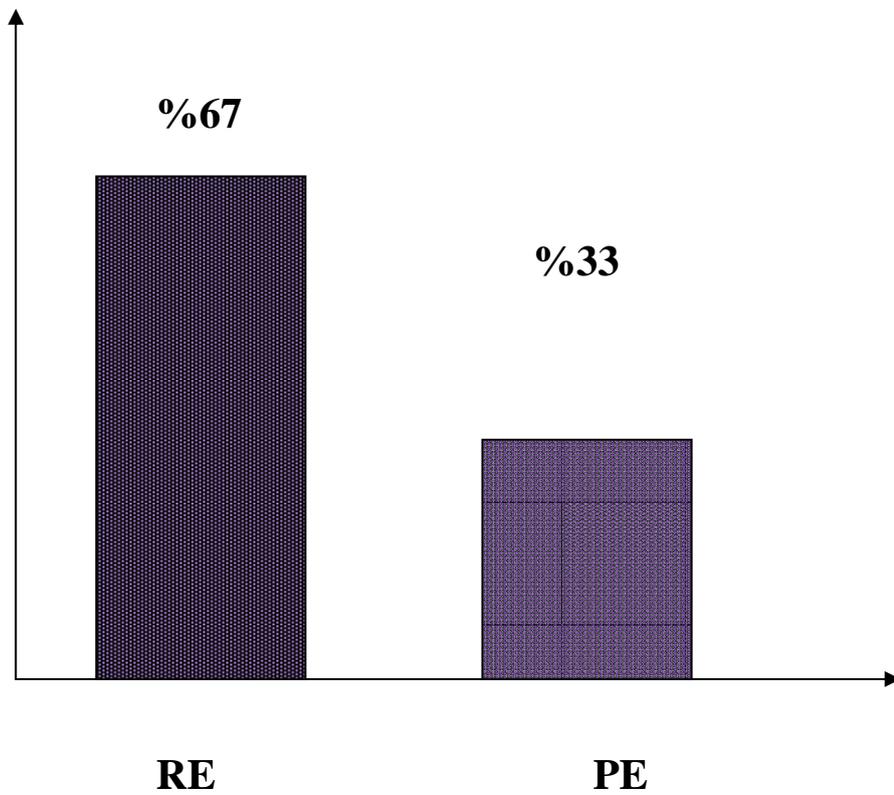
Graph 4.3.Ratio of 2 Types of Predicted Error

(observed in classroom activities)

Type 1:Prefix Error

Type 2:Restarting Error
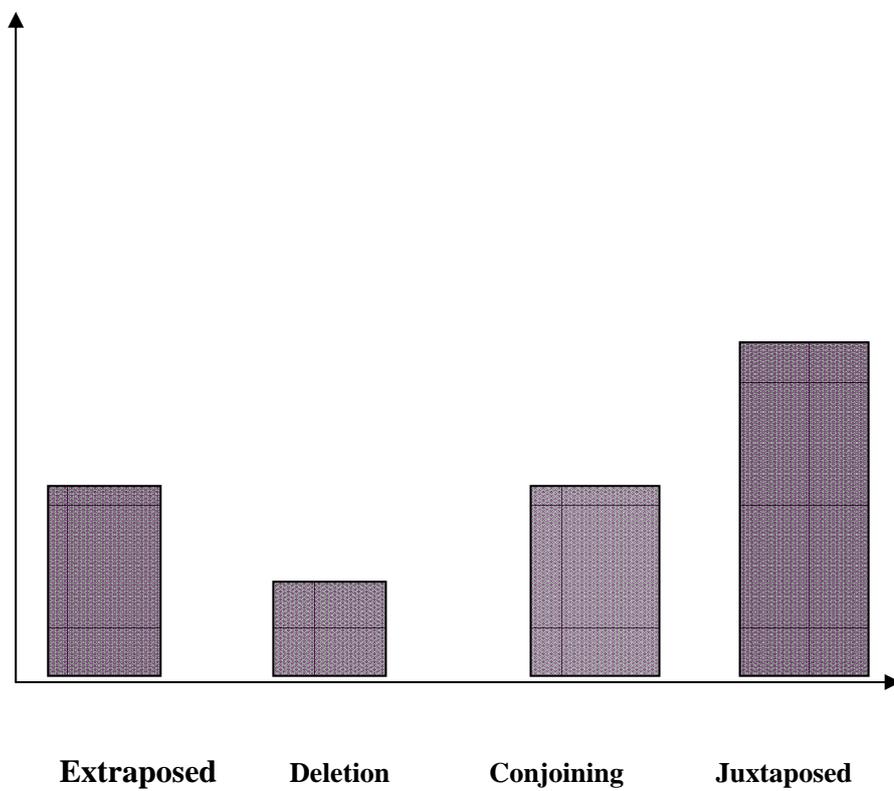
Graph 4. 4:Detailed Illustration of LSE

(observed in examination)

4.2.Discussion

At least more than 70 percent of subjects (22 out of 30) adopted the structure-dependent rule. The 8 other subjects could also be put in the same category in that they did not make any structure-independent errors. The types of LSE which were observed and encountered with in the classroom were mostly of two kinds: prefix error attracted almost 60 percent of errors and the second was: restarting error absorbed the rest of subjects. In question-formation test , the subjects invented new errors such as: conjoining, deletion, extraposition and juxtaposition. One student adopted deletion , two of them preferred extra position, three chose juxtaposition and the remaining subjects(2 out of 8) selected conjoining. Thus, the majority of our subjects employed the structure-dependent rule in forming yes/no questions from the original declarative.

Now it can be claimed that: UG principle is available to learners (at least in the case of structure-dependency in Y/N question formation). So, these findings can strongly claim the innateness of UG and availability of principles (in this case: structure-dependence) . by considering the fact that the two systems of language under investigation are pole apart. Persian is rigid SOV ,while English is SVO. English depends on movement in making question formation in Y/N case(S-Auxi inversion), while there is virtually no movement in Farsi and we just use AYA (then any distinction between the D-structure and S-structure seems irrelevant)

CHAPTER 5

5.0.Conclusion

"It is a curiosity of our intellectual history that cognitive structures developed by the mind are generally regarded and studied very differently from physical structures developed by the body". Noam Chomsky, 1980.

The so-called Innateness Hypothesis, which claims that crucial components of our tacit linguistic knowledge are not learned through experience but are given by our biological/genetic specifications, is not really a hypothesis. Rather, it is an empirical conclusion .Universal grammar is the theory of the initial state S_0 of human linguistic knowledge which is described as a set of *principles* and *parameters*. Principles are usually defined in terms of those aspects of language which are universal to all languages. The theory of Universal Grammar , especially in its Principles and Parameters version, made a very significant influence on research investigating second language acquisition over the past years. Yet whereas UG-based research on first language development almost unanimously agrees in viewing UG principles as constraining properties of children's grammars in essential ways, related issues are much more controversial in L2 studies. The question of whether or not UG continues to be accessible to second language learners has been answered differently. In this study we focused on the *structure dependency* principle. It states that movement depends on the phrasal structure of the sentence. This principle restricts the way operations transform the structure of one sentence to derive another: transformations can only move X to a position immediately dominated by X.

The first chapter is mainly concerned with what linguistic theory has to say about language acquisition, with special reference to generative theory of syntax. The core notion is that language acquisition is a biologically determined process governed by the 'language faculty' (i.e. LAD). In chapter two, the existence of the language faculty receives an account on the basis of external evidence (the logical problem of language acquisition). It offers an overview of some relevant UG principles and parameters and introduces the "Structure-Dependence Principle". A review of current linguistic theory applied to second language acquisition is presented in this chapter too. The researcher tried to demonstrate that the 'logical problem of language acquisition' can still be applied to a second language. This part considers some UG-based studies which provide competing analysis on the availability of UG to second language learners, and advances the question whether UG principles may be taught. Chapter Three is mostly concentrated on the experimental phase of this dissertation. In this study, an experiment was conducted to elicit yes/no questions from 30 subjects with a mean age 14-15. our aim was to test if the subjects could utilize a structure-independent operation, and produce a question form containing relative clause in which the auxiliary of subordinate clause govern the main one. The results were compatible with the UG hypothesis, none of the subjects adopted a structure-independent rule.

a. Is the cat __ eating its food?
b. * Is the cat which __ eating its food is your pet?

 Formation rules (from Lasnik and Uriagereka 2002)

a. Front the matrix auxiliary

b. Front the first auxiliary

the type of input provided by the speech community cannot inform a learner of which linguistic hypotheses are not correct and which ones *are* correct. If the available data does not provide sufficient evidence, how is the subject to get an insight into the language specific properties? Learning to associate inputs can only drive the child to overgeneralization in the syntactic domain, a property that child grammars lack. Thus, it can be reasonably concluded that advantage is given by an innate grammar module.

5.1.Implication of the study:

it seems indispensable to state the implication of research. As Oller says:" nothing is more practical than a good theory", so this study may have more theoretical implication than the pedagogical one, since UG is a theory of pure linguistics and the accomplishments of this research can be in the service of applied branches of linguistics such as: material development and teaching . By considering the fact of innateness of this principle, it can be claimed that :Iranian material developers can presents this structure at the first grade of high school (after they acquired simple present).

5.2.Limitation of the Study

The aim of **qualitative** analysis is a complete, detailed description in which rare phenomena receive the same amount of attention as more frequent phenomena . The main disadvantage of qualitative approaches is that their findings can not be extended to wider populations with the same degree of certainty that quantitative analyses can. This is because the findings of the research are not tested to discover whether they are statistically significant or due to chance.

The first step to ascertain the presence of UG in second language developmental grammars is to present evidence showing that universal principles of UG are operating in the second language. Linguists have focused primarily on the deep-structure properties of language which characterize primary language acquisition: structure-dependence, θ-criterion, case filter, subjacency etc. The type of evidence used by linguists in this context consists mainly of learner's intuitions about target language production or elicited responses in grammatical exercises.

In setting an experimental study, particular attention is devoted to determining the level of proficiency attained by second language learners. "Learners might violate a universal not because of the non-availability of UG, but because the structure in question is beyond their current capacity, and they are just stringing words together in an arbitrary fashion" (White, 1989:61). Another problem is the influence of prior language knowledge on second language acquisition (i.e. language transfer).

White (1989) remarks that "if a particular principle operates in both the L1 and L2, and if it turns out that L2 learners observe this principle, this does not provide clear evidence for the operation of UG; it might just be due to transfer of L1 knowledge".

The potential influence of prior language experience on second language grammar construction can be eliminated thoroughly in experimental studies if peculiar aspects of language in very different languages are compared. For example, English vs. Farsi for structure-dependence in this study: Farsi is a rigid SOV language and no movement of syntactic elements occurs; English, on the other hand, relies on structure-dependent movement of syntactic elements, as in the case of the formation of questions.

Bibliography

-Chomsky, Noam. (1965) *Aspects of the Theory of Syntax*. MIT Press.

-Chomsky, Noam. (1986). *Barriers*. Cambridge, MA: MIT Press.

-Chomsky, Noam. (1964).Current Issues in Linguistic Theory. The Hauge , Mouton.

-Chomsky, Noam. (1981) *Lectures on Government and Binding. : The Pisa Lectures*, 5th Edition. Providence: Foris Publications.

-Chomsky, Noam. (1986).ON Binding.Linguistic Inquiry II.1-46

-Chomsky N. (1980). Rules & Representation. Cambridge,MA: MIT Press.

-Chomsky, Noam. (1975). *The logical structure of linguistic theory*. New York: Plenum Press.

-Chomsky, Noam. (1982). *Some concepts and consequences of the theory of government and binding*. Cambridge, Mass.: MIT Press.

-Chomsky, Noam. (1968). *Syntactic structures*. The Hague: Mouton

-Chomsky, Noam. (1988).*Language and Problems of Knowledge*. Cambridge, MA: MIT Press.

-Chomsky, N. & M.Halle(1964).Some Contrroversial Question in Phonological Theory. Journal of Linguistics I:97-138

-Cook, V. J.& M. Newson. (1996)*Chomsky's Universal Grammar – An Introduction.*Oxford: Basil Blackwell.

- Cook, V. (1991). *Second Language Learning and Language Teaching. London*: British Library Cataloguing in Publication Data.

-Crain, Stephen. 1991. Language acquisition in the absence of experience.Behavioral and Brain Sciences 14, 597-659.

-Crain, Stephen and Rosalind Thornton. 1998. *Investigations in Universal Grammar: A Guide to Experiments in the Acquisition of Syntax and Semantics*. Cambridge: MIT Press.

-Crain, S. & Nakayama, M. (1987). *Structure dependence in grammar formation*. Language. 63.

-Crain, S. & Pietroski, P. (2001). *Nature, nurture and Universal Grammar*. Linguistics and Philosophy.

--Fodor, Jerry (1983).The Modularity of Mind.Cambridge, MA, MIT Press.
-Fodor, Jerry A. and Zenon Pylyshyn (1988). *Connectionist and cognitive architecture: a critical analysis*. *Cognition* 28: 3.71.

-Elman, J.L. (1990*). Finding structure in time*. Cognitive Science.

-Haegeman, Liliane (1994). *Introduction to Government and Binding Theory*. Malden, MA: Black-well Publishers.

- Hun-tak Lee ,Thomas(2004).*The nature of early syntactic competence:a critical reading of Tomasello*, ICS, Hunan UniversityGuangdong Foreign Studies University.

-Lasnik, Howard and Juan Uriagereka (2002*). On the poverty of the challenge. The Linguistic Review* 19.

-Lenneberg,E.(1967) Biological Foundations of Language.New York,Wiley.

-Legate, Julie Anne (1999). *Was the argument that made was empirical?* Manuscript. MIT.

-Legate, J.A. & Yang, C. (2002*) Empirical re-assessment of stimulus poverty arguments*. *Linguistic Review.*

-Lewis, J.D. & Elman, J.L. (2001). Learnability and the statistical structure of language: Poverty of stimulus arguments revisited. In *Proceedings of the 26th Annual Boston University Conference on Language Development*

-Pullum, Geoffrey and Barbara Scholz (2002). *Empirical assessment of stimulus poverty arguments*.The Linguistic Review 19.

-Pullum G.K. & Scholz B. (2002) Empirical assessment of stimulus poverty arguments. *Linguistic Review.*

-Radford,Andrew,(1988).*Transformational Grammar:A First Course*.Cambridge:CUP.

-Radford,Andrew,(1997).*Syntactic Theory And The Structure of English.A Minimalist Approach*.Cambridge:CUP.

-Razmjoo,S.A,(2005).Fundamental Concepts in Linguistics.Rahnama Press.

-Schneider,Gerold,(1998). *An Introduction To Government And Binding*.University of Zurich

-Stromswold, Karen. 1990. Learnability and the Acquisition of Auxiliaries. Doctoral Dissertation, MIT.

-White, L. (1985a). *Is there a logical problem of second language acquisition?* TESL Canada 2.

-White, L. (1990*). Second language acquisition and universal grammar*. Studies in Second Language Acquisition 12.

-Yang, Charles D. (2000). *Knowledge and learning in natural language*. PhD. dissertation. MIT.

Appendices A: pre-test sample

In the Name of God

Name :   **Time:15 min**

Make questions from the following sentences:

1- Donya is a girl.

2- Zohreh can play piano very well .

3- Arash is singing now.

4- The doll is next to the door.

5- The man can lift the box on the table .

6- He was jumping on the bed.

7- They are making cookie.

8- The boy next to the door is clever.

9- Sanaz is talking to the phone in the room.

10- Farnaz could read 10 pages in 2 hours.

Good luck

Appendices B: The First Session
Look at the pictures and make sentences.

1- The boy is happy. The boy can swim.
   The boy that is happy can swim.

2- The boy is playing football now. The boy is my brother.
   The boy that is playing football now is my brother.

3- The man is running in the yard. He is a teacher.
   The man that is running in the yard is a teacher.

4- The dancer is showing her dance. she can sing too.
   The dancer that is showing her dance can sing too.

5- The artist can draw pictures. she is drawing a pen now.
   The artist that can draw pictures is painting a pen now.

6- The girl is jumping the rope. she is tall
   The girl that is jumping the rope is tall.

Appendices C: The Second Session

(The second phase of training session: **Teaching Question-Formation**)

Can you see the boy that is solving a puzzle?

Do you know the boy that is riding a bicycle

Can you see the man that is cutting the wood?

Can you see the woman that is cooking food .

Do you like the boy that is cutting the lawn?

Do you know someone that can clean the house?

Appendices D: Syntax Test

In The Name Of God

Name: Time:45 min

Direction :Translate the following sentences into English

1- Sasan be amoozeshgahi miravad ke dar kheyabane Zand ast.

2- Afsaneh darad ketabi mikhand ke jelde abi darad.

3- Elnaz aroosaki darad ke mitavanad avaz bekhanad

4- Benyamin sagi ra doost darad ke dar hayat midavad

5- Yashar doosti darad ke be madreseh miravad

6- Man daftari daram ke 100 barg darad.

7- Donya doosti darad ke mitavanad shena konad.

8- Maryam dokhtari darad ke mitavanad englisi sohbat konad

9- Armin baradari darad ke mitavanad benevisad

10- Ramtin khargooshi darad ke tond midavad

Appendices E: Question Formation Test

In The Name of God

Name :   **Time:40 min**

Direction: Make a question from each sentence.

Example : She is running —————————▶   Is she running?

 Danny can play the piano _____ Can Danny play the piano?
        —————————▶

1-   The man that is playing the guitar can dance.

2-   The girl can read aloud.

3-   The man that can sell the books is *singing now*.

4-   The girl that can swim can jump high.

5-   The cat in this room is eating.

6-   The girl that is cooking is smiling.

7-   The boy that is skating is smiling.

8-   The girl is walking now.

9-   The girl that can skate well is singing now.

10-   The girl that is singing can swim fast.

11-   The man in the room is cooking.

12-   The   boy that can jump can run fast.