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parameters. But this argument has been under attack as it became clear that "input to young children is in fact very rarely degenerate" (White, 1989, p. 12).

Another questionable assumption is that children don't receive enough negative evidence. First, this lack of negative evidence doesn't imply that linguistic knowledge is innate. Rather, learning may be a process involving initial adoption of a conservative hypothesis (O'Grady, 1987). According to this hypothesis, learning is guided by positive evidence. Second, research has shown that negative evidence is present in the input. As Long (1996) maintains, negative evidence is available in input to children and exists in usable form and is picked up and used by child learners. And in SLA, too, Long (1996), examining the data, says "various forms of negative evidence, ..., are well documented in instructed L2 acquisition" (p. 444).

Overall then, the UG approach to language acquisition is based on a questionable assumption, i.e., the lack of negative evidence. It remains for the future to tell how much impact findings regarding the existence of negative evidence in the input will have on UG. So before trying to find solutions to the "logical problem of language acquisition," evidence must be presented to show that it is really a "problem".

involving grammaticality judgements. The results show that the subjects are very accurate on the grammatical sentences. Their performance is not significantly different from the control group. But when it comes to adjacency violations, subjects fail to reject them. Subjects are less accurate on the ungrammatical sentences. It means that subjects are not observing the Subset Principle in their acquisition of English, because if the Subset Principle were operating, it should have caused the subjects to reject the adjacency violations. The subjects performed several tasks. The results from all these tasks support the claim that the Subset Principle does not operate in second language acquisition. Rather, the L1 value of the parameter, that is, the [-strict adjacency] value is transferred.

Through this study, White (1989) concludes that the failure among second language learners to arrive at native like grammar is attributed to the failure of the operation of a learning principle, Subset Principle, rather than to the impossibility of access to UG. This principle no longer operates effectively in L2 acquisition due to mother tongue influence and fossilization.

This paper examined those solutions to the logical problem of language acquisition which were offered from the perspective of a nativist theory. But as Chomsky himself points out, this theory is only an approximation, and will be revised as we acquire more knowledge about the properties of language. There are some questionable assumptions in Chomsky's explanation of language acquisition (Larsen-Freeman & Long, 1991, p. 236).

One of these assumptions is the claim that input to children is meager and degenerate and thus cannot provide an adequate basis for setting the

1965, p. 37, cited in White, 1989, p. 138).

English is a [+strict adjacency] language and French is a [-strict adjacency] language. In other words, the grammar of English is less general than the grammar of French. As far as L1 acquisition is concerned, the child will first assume the narrowest grammar consistent with the data, i.e., a grammar which observes strict adjacency. Consequently, if the child is exposed to English, he will never produce sentences like the starred one above, i.e., \* Mary ate quickly her dinner. But if he is exposed to French, he will start by adopting [+strict adjacency] but when he encounters confirming positive evidence, by facing evidence that verb-object sequences can be interrupted, he will adopt the negative value of strict adjacency. But what about second language acquisition? How does the Subset Principle apply in L2 acquisition?

### Evaluation of the Subset Principle

In an experimental study, White (1989) looked at the performance of French speaking learners of English. The subset hypothesis predicts French learners of English will pick the [+strict adjacency] value of the parameter. This is the value which generates the subset language, and the English L2 input will not provide any evidence to suggest that the other value should be adopted. Thus, French learners of English are predicted not to accept or produce sentences like: \* Mary ate quickly her dinner. But, the Transfer Hypothesis, predicts that the French learners of English will transfer the [-strict adjacency] value from their L1. In this way, sentences like: \* Mary ate quickly her dinner, will be accepted and produced.

The subjects in her study were asked to perform three types of tasks

of language acquisition and to guarantee that language acquisition can be achieved with positive evidence only is the one suggested by Manzini and Wexler (1987): the Subset Principle. Briefly, the Subset Principle, as Lakshmanan (1994) puts it, says that "given two values of a parameter, the child will select the value which yields the smaller language" (p. 13). Learners, as this learning principle implies, do not start with over inclusive grammars that would need negative evidence for disconfirmation.

Taking the case of adjacency as an example, we see that in English, adjacency is strictly observed [+strict adjacency] while French allows adjacency violations. In English, the learner faces sentences like the following:

Mary ate her dinner quickly.  
Quickly Mary ate her dinner.  
Mary quickly ate her dinner.

Based on these data, the learner may assume wrongly that the following sentence is also correct:

\* Mary ate quickly her dinner.

In such a case, negative evidence is needed to say that the above tarred sentence is wrong. But we know that such evidence is not available; the problem is how the child learns that this is non-English and he should reset the value to [+strict adjacency]. Since negative evidence is not available, we should think of a learning process by ordering the learner's hypotheses. Here, the Subset Principle helps: "The Subset Principle is one of conservative acquisition. The learner should hypothesize languages in such a way that positive evidence can refute an incorrect guess" (Berwick,

languages have different bounding nodes for subjacency, it might be the case that "some of the ungrammatical subjacency violations used as test sentences by Schachter would not be violations in languages which have different bounding nodes from English" (p. 73). So perhaps the nonnatives have been observing Subjacency but they have failed to observe the appropriate bounding nodes for English.

Methodologically speaking, referring to the materials Schachter used in her experiment, White says "Schachter's syntax test sentences and the UG test sentences were not controlled for length and vocabulary choice and were only partially comparable in terms of syntactic structure." White's study thus reveals that a second language learner has a different competence but still a UG based competence which is influenced by L1 grammar. In spite of this extensive research, no real consensus exists on the availability of UG to L2 learners.

### **Alternative to UG**

Another question about the case of the adult second language learners is whether certain types of failures in acquiring second languages are attributable to some principles different from the UG principles? White (1989) assumes that the principles of UG and the principles of learning are quite distinct. She attempts to find out whether certain types of failures are due either to the impossibility of access to UG or to the failure of operation of a certain learning principle.

### **Manzini and Wexler's (1987) solution: Subset Principle**

A principle that has been proposed to account for the logical problem

As Cook (1993) says "Languages differ over whether S or S' is a bounding node" (p. 135). As far as Subjacency is concerned, for example, it doesn't appear at the level of surface structure in Korean; in Chinese and Indonesian, it exhibits itself in a more restricted way than it does in English. To explain this on the basis of the UG theory two possibilities can be observed. If Koreans, whose language has no syntactic movement, learning English show that they know subjacency, since this could not be transferred from their L1, the conclusion would be that they have access to UG. And if Koreans do not show any sign of this principle, then the conclusion would be that they don't have UG available to them. In an experimental investigation of access to the Subjacency Principle by second language learners, Schachter (1989) addresses this question and attempts to find out whether evidence for the universality of Subjacency can be found in proficient speakers of English whose native languages are Korean, Chinese, or Indonesians. She has found that native speakers of languages that do not instantiate Subjacency because they lack syntactic wh-movement (i.e., Korean) show no evidence of observing Subjacency in the L2, in contrast to learners whose L1 instantiates Subjacency (i.e., Indonesian). The Korean speakers fail to recognize Subjacency violations in English, unlike Indonesians and Chinese who are accurate at recognizing violations. Schachter concludes that UG is unavailable to adult learners because they fail to recognize violations of principles of UG unless these principles also operate in their L1.

Schachter's study has not gone unchallenged. White (1989) examining Schachter's data theoretically and methodologically suggests other explanations for Schachter's findings. Theoretically, White says since

claimed that in the process of second language learning wild grammars could be identified which do not obey any principles or parameters (Fletcher & Garman, 1986).

### Evaluation of the access models

An important issue in investigations of UG in SLA has been evaluation of these models. Much of the work on UG in SLA has looked for the operation of principles (Thomas, 1991 & Gass, 1996) and parameters (White, 1985). A key area for testing these positions is the Subjacency Principle which is one of the proposed universals. Subjacency, as Haegeman (1991) puts it, "defines the boundaries for movement and thus determines how far an element can be moved" (p. 365). He says that elements can move across only one bounding node in the sentence but not more. In English the bounding nodes include S, S', and NP, (Cook, 1988, p. 135). The operation of this principle is illustrated in the following example.

1. Curly will hit the dog with the stick.
- \* 1a. What [S did Curly hit [NP the dog with t]]?
- 1b. What [S did Curly hit [NP the dog][PP with t]]?

Two structures could be assigned to the string of words in (1). The main difference is whether or not the PP "with the stick" is internal to the direct object NP.

The sentence in (1a) is wrong because as the Subjacency Principle implies no constituent can be moved over more than a single bounding category while in this example, the wh-word has crossed two bounding categories (NP and S) and is thus ungrammatical.

child is to acquire English. There is, however, some controversy whether Hyams's position accurately reflects the facts of acquisition, and whether children learning their L1 necessarily start from the pro-drop setting.

### **Access to UG in L2**

The issue of the starting point is even more relevant to SLA. A question of theoretical importance is whether a learner starting to learn a second language has access to UG or not. Are the principles and parameters of UG available in their entirety to adult second language learners? As Lakshmanan (1994) puts it "currently there are three different hypotheses regarding the availability of UG in adult L2 acquisition: Direct access to UG, Indirect access to UG, and No access to UG" (p. 18). In the Direct access position, L2 learners learn in exactly the same way as L1 learners; they set values for parameters according to the L2 evidence they encounter without any other influence" (p. 211). And according to the Indirect access model, "L2 learners have access to UG through what they know of the L1, but they start with the L1 parameter settings rather than the initial neutral or default state (p. 211). In the No access position, as Cook (1993) puts it "L2 learners acquire the L2 grammar without any reference to UG; the grammar is learnt through other faculties of the human mind and so probably bears little resemblance to usual linguistic competence" (p. 210). The model implies that UG is no more active. The proponents of the No access position believe that there is a fundamental difference between L1 and L2 acquisition. They say the immense variation among learners in degree of success shows the unavailability of UG in adult second language acquisition. In support of this hypothesis, it was initially

which will be explained in the next section.

## **Principles and parameters theory**

In the UG approach the claim is that all human beings inherit a universal set of principles and parameters. The principles are common to all languages and the parameters specify how a particular principle is instantiated in a language. Learning a language, the learner's task is to determine which of the values of the parameters of UG are valid for the language he is learning. For example, based on the input, he will see whether the language is Head initial or Head final and set the parameter accordingly. Over the years, some of these principles and parameters have been introduced by Chomsky (Chomsky, 1981, 1982, 1986) including the Projection Principle, the Movement Principle, the Structure Dependency Principle, the Null Subject Parameter, the Governing Category Parameter, etc.

### **Initial setting for parameters: No setting or default setting?**

One of the questions for the UG model concerns the initial setting for parameters. There might be no initial setting, so a child can adopt any setting with equal ease. Or there might be a default setting consisting of one or the other of the possible settings. Hyams (1986) showed that the early speech of children learning English has null subjects. Hence, so far as the pro-drop parameter is concerned, the child starts with a particular value, namely +pro-drop, rather than having a neutral setting. The setting can remain the same if the child is learning Spanish, but must change if the

produce it and get sufficient corrective feedback, negative evidence, so that he can know this is not a possible sentence. But such evidence never happens. Thus, the question for any language learning theory, as Lakshmanan (1994) puts it "is to account for these and other constraints on grammar formation" (p.4).

### **Chomsky's solution**

As far as First Language Acquisition is concerned, as a solution to the problem discussed above, Chomsky introduces the idea of an innate knowledge, which acts on linguistic input. The argument goes like this. Many of the sentences the grammaticality and ungrammaticality of which native speakers have intuitions about have never been heard by them before. The logical solution is that if the learner has knowledge that these sentences are ungrammatical, and this knowledge, due to the lack of negative evidence, cannot be derived by the learner from the input, so this knowledge is determined by the learner's innate language faculty which Chomsky calls Universal Grammar and defines it in this way:

UG consists of a highly structured and restrictive set 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.

Chomsky, 1981, p.38

Thus, Chomsky proposes the existence of a language specific module in the brain which allows the child to learn a language so easily. But what does UG consist of? According to this view of language learning, at the very initial state, the learner knows a set of principles and parameters

Chomsky's (1980s) solution, i.e., Universal Grammar (UG) and the theory of principles and parameters, will be explained and investigations into whether UG is still available in SLA will be presented. Later on, Manzini & Wexler's (1987) solution to "the logical problem of language acquisition", i.e., the Subset Principle, will be explained and the results of investigations into the evaluation of the Subset Principle will be discussed. At the end of this review, "the logical problem of language acquisition" will be examined once more to see if such a "problem" really exists.

### **Logical problem of language acquisition**

Nativist theorists (Pinker, 1989, cited in Mitchell and Myles, 1998, p. 135) claim that languages cannot be learned from input which provides only positive evidence about the language. Positive evidence refers to the evidence that the utterance is grammatical. Negative evidence refers to the evidence that an utterance is ungrammatical, i.e., the correction of an utterance. It is argued that in the process of learning, only positive evidence is available to the learner. There is no direct negative evidence about the ungrammatical sentences to show the learner what is not possible. At the same time, the learner never makes certain types of mistakes, i.e., some types of ungrammatical sentences are ruled out in advance without any need for negative evidence. The question which raises is how the learner comes to acquire the complex properties of the native language on the basis of the input that lacks negative evidence. As an example, why do L1 learners fail to produce sentences like "Is the teacher who tall is your friend?" The only way the learner could learn that the above sentence is ungrammatical is that someone or the learner himself

# Universal Grammar and Second Language Acquisition

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## چکیده:

این مقاله برخی از راه حل‌هایی که برای «مشکل یادگیری زبان» طرح شده‌اند را مرور می‌نماید. در آغاز راه حلی که جامسکی ارائه داده است، یعنی دستور جهانی و نظریه اصول و پارامترها، طرح می‌شود. سپس تحقیقات انجام گرفته جهت روشن کردن نقش دستور جهانی در یادگیری زبان دوم ارایه می‌شود. سوالی که مورد بررسی این تحقیقات قرار گرفته این است که آیا دستور جهانی در مراحل یادگیری زبان دوم نیز مورد دسترسی یادگیرنده می‌باشد یا خیر. سپس راه حلی که Manzini & Wexler برای «مشکل یادگیری زبان» ارایه داده‌اند طرح و نتایج تحقیقاتی که این راه حل را مورد ارزیابی قرار داده‌اند، ارایه می‌شود. این مرور نشان می‌دهد که در حال حاضر محققین یادگیری زبان دوم در مورد پاسخ این «مشکل» اتفاق نظر ندارند. عده‌ای از صاحب‌نظران نیز مسایلی که موجب طرح «مشکل یادگیری زبان» شده‌اند را مورد تردید قرار داده‌اند.

This article addresses one of the theoretical issues in Second Language Acquisition (SLA), i.e., "the logical problem of language acquisition," known also as "the projection problem" or the "no negative evidence problem." First, "the problem" will be elaborated. Then,