ACQUIRING A SECOND LANGUAGE:
NEW DIRECTIONS FROM LINGUISTIC THEORY

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1.0 Introduction

Although the marriage of language acquisition and linguistic theory might seem natural, the past twenty years have seen both fields more ignored than consulted by the other. Although the initial excitement over Syntactic Structures (Chomsky, 1957) led to the pioneering work by Bellugi (1967), Brown (1972), and others who used transformations to describe regularities in first language acquisition, that research was less explanatory than descriptive and certainly did not test hypotheses based on linguistic theory.

The framework of Aspects (Chomsky, 1965) argued for a "psychologically real" grammar without clearly defining what psychological reality entailed. A Language Acquisition Device (LAD) was postulated but left unspecified. Initial evidence from psychological tests which correlated with transformational complexity (Miller, 1962; Clifton and Odom, 1966) seemed to imply that the theory was on the right track. However, as rules became exceedingly complex and the date required to test them became more subtle and less open to psycholinguistic studies, acquisition researchers turned to functional rather than linguistic explanations of the acquisition process.

The advent of the Extended Standard Theory (Chomsky, 1972), with its emphasis on constraints and semantic interpretation, revived acquisition studies based on linguistic theory in some circles, particularly by Roeper and his students (see Goodluck and Solan, 1978; Tavakolian, 1981). Such studies still relied on restricted linguistic hypotheses, and often developed explanations from the data rather than from the theory. Work on anaphora (Flynn, 1983; Lust, 1981, 1983; Solan, 1978) and research based on linguistic constraints also appeared (Otsu, 1981; Phinney, 1981). In spite of the L1 research, which supported the usefulness of generative

grammar models to create hypotheses for acquisition, research in second language acquisition generally did not follow suit (Flynn (1983) being a notable exception).

More recently, the Government-Binding framework (GB) (Chomsky, 1981, 1982, 1986) has provided a new direction for language acquisition research. For the first time, the linguistic model has begun to specify the contents of the LAD, as well as what it means for a grammar to be "psychologically real." The framework is simpler in many ways than previous models; the grammar is modularized, rules stripped down to their simplest components, constraints generalized, and cross-linguistic phenomena included. The GB framework is also the first generative model to assume that it must account for language acquisition, both first and second. As a relatively recent theory, GB has just begun to influence language acquisition research. However, it has the potential to be a truly explanatory model for many aspects of both first and second language acquisition.

This paper will summarize the basic principles of the Government-Binding Framework and its implications for language acquisition research, particularly for second language acquisition. The first section will provide a brief overview of the GB model. In the second section, I will discuss some of the available research on first and second language acqusition based on the model. Finally, the implications for second language teaching, tentative though they are, and further avenues for research will be discussed.

2. A Model of Universal Grammar

Unlike previous transformational models, the current framework includes both universal (Core) and particular (Periphery) grammar. Core Grammar (CG) contains several modules of basic general principles which can account for a wide number of constructions. The modules include conditions on case assignment, thematic role assignment (O-criterion), classification of NP types and conditions on their occurence, conditions on coreference (Binding) and conditions on the relationship between nodes (Government). These principles are assumed to be

invariate; they are basic principles which apply in all languages, although the manner of their application may vary in pre-defined ways.

CG is the primary linguistic component of the LAD. It is assumed that all children begin with the basic CG principles, and that part of the acquisition process entails discovering how the input language handles the various aspects of each module. For example, there are three types of noun phrases: anaphors, pronouns, and referential expressions. A child must determine which lexical items in her language are anaphors (in English, reflexives and reciprocals) and which are pronouns. She must also determine how the various types of empty noun categories fit into this classification to predict how they behave.

That which may vary from language to language must be determined based on the available linguistic input. Such variable conditions include parameters, conditions which may allow a set of variations which a language may select from. These settings may be ranked according to markedness and generally affect a range of syntactic constructions which may not appear to be related on the surface. These parameters are crucial in language acquisition. At the initial stages of L1 acquisition, the parameters are assumed to be in their unmarked state. This means that the child will assume that they will operate in that way until the input data provides sufficient evidence to the contrary. It has been hypothesized (Roeper, 1982) that certain data is required to "trigger" the resetting of a parameter. These triggering constructions are frequent in the language, but may be crucial in the resetting process. One of the issues in applying the model to L2 acquisition is the nature of this resetting process when the parameter has already been set in the first language.

2.1 The Structure of the Grammar. The current model of the grammar takes the shape of a "T", including the three components of Syntax, Phonology, and Semantics. Beginning with the Extended Standard Theory (Chomsky, 1972), the syntactic component was simplified, with many aspects of the grammar which had previously been handled as transformations being moved into semantic rules which operated at both the deep and surface structure. This especially applied to rules of anaphora and quantification. At the same time, the phrase structure component was

restricted by X-bar theory (Jackendoff, 1977). The Revised Extended Standard Theory (Chomsky and Lasnik, 1977) moved the semantic component out of the deep structure entirely; all semantic rules apply off the post-transformational structure. The GB model is not far removed from this structure; it follows the same general plan (Fig. 1), but has specified both the phonological and semantic components more fully, as well as simplified the transformational component to a single rule, Move α, which is subject to the Subjacency Condition (Chomsky, 1973).

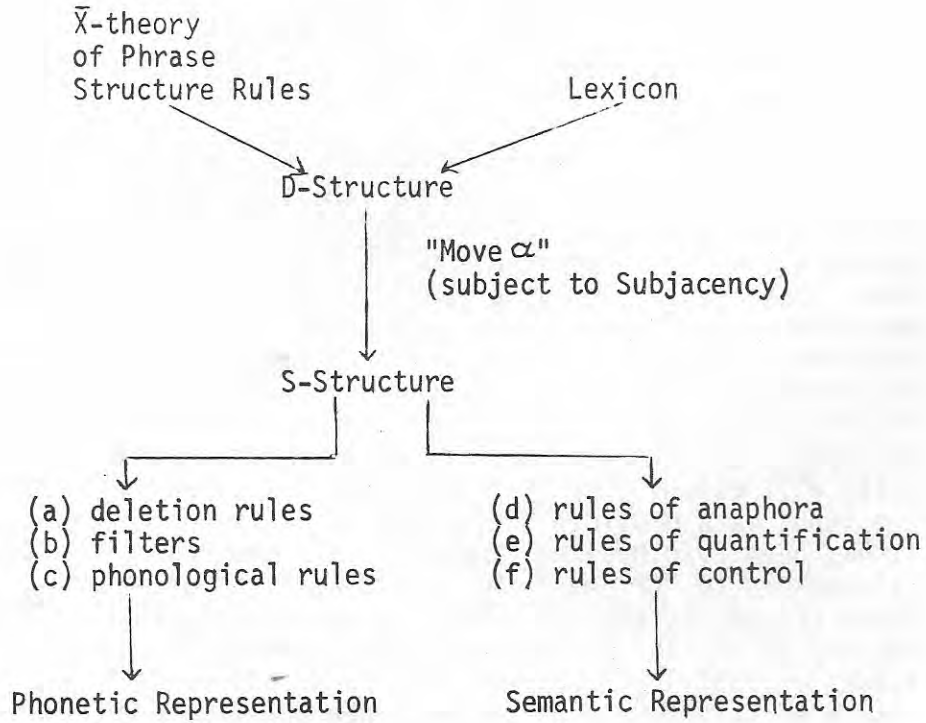

Figure 1. T-Model of Grammar (Riemsdijk and Williams, 1986:173)

This model, as Riemsdijk and Williams noted, is a model of the Core Grammar. The "periphery", the particular rules of each language which are not part of the general conditions of human language, must interact with the core but is probably acquired somewhat differently. If, as has been suggested, the restrictions present in this model of core grammar result in a finite number of possible grammars, the acquisition problem is much reduced.

The components of the grammar which have been most discussed in language acquisition have been those in the right branch, (d-f). This is a radical departure from earlier acquisition work, which concentrated on the transformational component and constraints. In particular, rules of anaphora (Flynn, 1987; Lust, 1986; Solan, 1983) and control, including government and case-marking (Hyams, 1987; White, 1982) have been the focus of research in first and second language acquisition.

2.2 Case Marking. Linguistic constraints have been proposed to account for a number of facts, primarily in English, which reflect the fact that noun phrases cannot appear in every noun phrase position. In particular, full noun phrases cannot be subjects of infinitives, as in (1), unless certain exceptional conditions prevail (2).

1. a. *John seems Mary to be sick.
   b. *The book to be published would be nice.

2. a. John wants Mary to get well.
   b. John believes Mary to be sick.

Under the EST, (1a) was ruled out by specifying that seems obligatorily underwent Raising; (1b) was ruled out rather arbitrarily by specifying that sentential subjects had to have complimentizers. (2a) was generated by Equi NP Deletion, which was triggered by the verb want; (2b) by Subject to Object Raising, again lexically triggered.

As long as linguists looked only at English, these analyses were descriptively adequate. However, it soon became clear that English was unusual in allowing constructions like (2) at all. Most languages strictly prohibit the use of lexical subjects with infinitive verbs (3a), using a that clause when the embedded clause requires a different subject from the matrix clause (3b). A more general principle, one which would express the fact that English is unusual, is required.

3. a. *Juan quiere María mejorarse.
      John wants Maria to-recover

   b. Juan quiere que María se mejore.
      Johns wants that Maria recover
      'John wants Maria to get better'

* NP, where NP has no case.

The GB framework accounts for the facts in (1-2) and related facts by specifying a system of abstract case marking for noun phrase positions and a principle called the Case Filter (4).

4. Case Filter

The case marking system is required anyway to account for morphological case in those languages which use it as well as consistent differences in behavior between subject and object noun phrases. Under this system, each NP position is assigned case by a case-assigner. The subject of a tensed clause will be assigned nominative case by the tensed verb phrase (agreement or inflection (INFL)) and nouns in verbal or prepositional object position are assigned accusative case by the verb or preposition respectively. Since the subject of an infinitive cannot receive case because the verb phrase is not tensed, any lexical NP in that position will be marked as ungrammatical.

What about the sentences in (2)? In both cases, the verbs want and believe must be marked in the lexicon as exceptional case assigners (in this case across an S'/S boundary). Such verbs must be acquired and marked during acquisition as exceptional, which accounts for the late acquisition of the NP-to VP constructions (Phinney, 1979). They will be part of the periphery; the general rules of case assignment and the Case Filter are part of the Core.

Case assignment, like many other modules of the grammar, depends on the notion of government (6) Government is a hierarchical relationship between nodes which depends on an earlier notion, c-command (5) (Reinhart, 1976).

5. c-command

A c-commands B if and only if the first branching node dominating A also dominates B, and A does not itself dominate B.

6. Government

X governs Y if and only if Y is contained in the maximal X' projection of X which is the smallest maximal projection containing Y, and X c-commands Y.

Essentially, verbs, prepositions, and tense can govern NP. In the case of subject of a verb, the maximal X' projection of tense (INFL) is S', which contains and c-commands the subject NP. A preposition's maximal X' projection is PP (P"), which of course contains and c-commands the object NP. The maximal projection of V is VP (V"),which contains and c-commands the object of the verb. However, without Tense in INFL, as in an infinitive, the subject position is not governed and thus cannot receive case.

The "empty" subject position in infinitives is not in fact empty, but contains a lexically null subject, PRO. PRO carries no semantic information and must be interpreted according to the rules of control (sec. 2.4). Significantly, PRO cannot have case, since it is not a lexical NP (3). Thus, the unmarked case for infinitives is to have lexically empty subjects which do not receive case, i.e. PRO.

2.3 A Classification of NP. In addition to classing NPs by position, they can also be classed by type. There are essentially four types of NPs, which fall into two major categories according to whether they have an antecedent or not (Riemsdijk and Williams, 1986: 260).

NPs without antecedents are lexical NPs, or referential expressions. They must be case marked (sec. 2.2) and cannot be bound (sec. 2.4). All other NPs have antecedents, and can themselves be divided according to whether the antecedent is in an argument position (governed by V, P, or INFL) or a non-argument position (COMP). The latter include traces from WH Movement, which must be case marked. The former include traces from NP Movement, reflexives, and reciprocals, all of which must be bound, as well as pronouns and PRO, which are not bound within their governing category (usually S' or NP).

2.4 Binding Theory. Earlier versions of the EST accounted for coreference facts with various rules, including rules of obligatory coreference (Pronominalization and Reflexivization), rules of optional coreference, rules of disjoint reference (Lasnik, 1976) or both coreference and disjoint reference rules (Lightfoot, 1982). With the movement of semantic rules from the D-structure to the S-structure, the need for coreference rules which applied to existing representations (interpretive rules) rather than those which changed representations (transformations) was apparent. To this end,

we now assume free indexing of NPs, meaning that indices may be assigned without stipulation on how they are assigned, but the resulting representation must meet certain conditions.

It is clear that different types of noun phrases have different coreference requirements. Chomsky's original proposal for the Binding Conditions defined three types of NPs with the conditions for coindexing (7).

7. Binding Conditions

   a. A bound anaphor ([+anaphoric]) must be bound in its governing category.
   b. A pronoun ([+pronominal]) must be free in its governing category.
   c. A lexical NP ([-anaphoric, -pronominal]) must be free.

In (7a), a "bound anaphor" refers to the type of NP which must have an antecedent (reflexives, reciprocals, and traces). "To be bound" means to be coindexed with its antecedent. The Binding Conditions hinge crucially on the notion of governing category (8), which replaces earlier statements about "domains."

8. Governing Category

   α is the governing category for X if and only if α is the minimal category containing X and a governor of X.

In practice, "the minimal category" for government is NP or X. Thus, a reflexive must be bound within NP or S (9); a pronoun must be free in NP or S (10), and lexical nouns must always be free, since they cannot have antecedents.

9. a. John saw [that Mary$_i$ washed herself$_i$]
   b. *John$_i$ saw [that Mary washed himself$_i$]

10. a. John$_i$ believed [that Harry$_j$ would vote for him$_i$]
    b. *John$_j$ believed [that Harry$_i$ would vote for him$_j$]

That still leaves PRO as problematic. PRO is both

anaphoric, in that it has an antecedent, and pronominal, in that its antecedent must be outside the NP or S. Thus, it appears that PRO must be both bound and free in its governing category. This seems to be a contradiction. However, recall that PRO appears as the subject of infinitives. The subject NP position is normally governed by Tense (INFL), but in an infinitive, which has no Tense, the subject position is ungoverned. In this position, PRO therefore has no governing category, so neither rule applies. By both the case marking and the binding rules, PRO is restricted to the subject of infinitive verbs.

If PRO has no governing category, then, since it must neither be bound or free, it may be arbitrary in reference. In this case, PRO is free not only in its governing category, but in all governing categories, as in (11).

11. It was decided $[_{S'}[_{S}$PRO to close the schools because of snow$]$

In acquisition, the child must determine which lexical items belong to a particular class and what the relevant governing category is. This depends on the acquisition of complex sentence structures, which almost immediately leads to the correct application of binding and case conditions (see Otsu (1981) for an interesting correlative study of syntactic development and the appearance of Subjacency).

2.5 The Nature of Parameters: Null Subject. Given the basic modules of the grammar described above, we can not take up the issue of parameters and their role in the grammar and in language acquisition. Parameters are aspects of CG which allow a restricted set of possibilities. For example, the X-bar theory of Phrase Structure hypothesizes that CG contains a basic PS rule (11).

12. X" → (Spec) X'

Rule (12) means that any phrasal level category (X") can be broken down into a specifier (SPEC) and a head (X'). In the case of English noun phrases, for example, the Spec

is the Determiner, while the head noun is a "small" NP (N'). In English, the Spec generally occurs before the head; in other languages, the Spec may follow the head, or the order may be mixed, before for some phrase types and after for others. Rule (12) is a part of CG; the variations make up a parameter whose setting must be determined by the child from the available input data. Hearing a sentence like "Look at the dog" and recognizing the dog as a phrase with dog being the content part would be, in theory, sufficient to set this parameter.

The parameter which has been most discussed in recent research is that dealing with the occurrence of empty subjects. Originally called Pro-Drop (Perlmutter, 1971), it is now called the Null Subject Parameter. It is assumed to be related to a general principle dealing with empty nodes called the Empty Category Principle (Jaeggli, 1982: Rizzi, 1982).

Perlmutter's basic observation can be illustrated with examples from English and Spanish. In null subject languages, subjects may be empty in several constructions (13) while the corresponding constructions in a non null subject language are ungrammatical (14).

13. a. Missing subject pronoun

EC comen a las nueve.
they-eat at nine
'They eat at nine'

b. Free subject-verb inversion in simple sentences

i. La profesora ha llamado
the professor has called
ii. EC_i ha llamado la profesora $_i$
has called the professor
'the professor has called'

c. Apparent violation of the that-trace filter

¿Quién$_i$ creyó la policía (que [EC_i usó guantes])
'Who did the police think wore gloves'

d. Subject extraction from a wh-island

la mujer$_i$ que no conozco cuando EC$_i$ ha llamado
'the woman about whom I don't know when she has called'

e. Null resumptive pronoun

la profesora$_i$ que no conozco que ha dicho que EC$_i$ ha llegado
'the professor about whom I don't know who has said that she has arrived'

14. a. *(They) eat at nine.
b. *Has called the professor
'The professor has called'
c. *Who$_i$ did the police think that e$_i$ wore gloves
d. *The woman$_i$ about whom I don't know when EC$_i$ has called
e. * The professor$_i$ about whom I don't know who has said that EC$_i$ has arrived

The Null Subject parameter may be related to the Empty Category Principle (Jaeggli, 1982; Rizzi, 1982), which states that all empty categories ($_{NP}$e) must be properly governed. Proper government for empty categories entails government by N, V, A, or P or a bound (coindexed) antecedent. In English, sentences (14) will be ruled out because in all cases, there is no proper governor for the subject position.

In Spanish, however, the equivalent sentences (13) are grammatical. It has often been observed (Perlmutter, 1971; Pesetsky, 1982; Taraldsen, 1978) that the null subject effect is correlated with "rich" verbal morphology which allows the subject to be recoverable when it is lexically empty. If we assume, following Rizzi (1982), that in languages like Spanish and Italian AGR can be a proper governor, then sentences (13) are predicted as grammatical. Whether the empty category results from movement, as in (13b-d) or is base generated as in (13a) and (13e), the subject position will be properly governed by the "rich" AGR. Thus in English, [$_{INFL}$ [+tns] AGR] will assign case but not properly govern an empty category. In Spanish, [$_{INFL}$ [+tns] AGR] will both assign case and properly govern an empty subject category.

3. Parameters and acquisition

Parameters like Null Subject, unlike the basic CG principles, allow a restricted set of possibilities. These settings can be ranked according to markedness; marked settings are assumed to be acquired later, require more input (Eckman, 1977), and possibly require specific "trigger" data. The unmarked setting of the Null Subject parameter is assumed to be that exemplified by Spanish and Italian, in which AGR may properly govern an empty subject position (Rizzi, 1982). English is assumed to be marked for this parameter.

The model assumes the child begins with CG in the unmarked state, implying that s/he expects that the verbal agreement will be rich, that subjects are not required, in short that AGR is a proper governor. The child who is acquiring English must reset the parameter on the basis of the input data. Possible triggering date could include the use of semantically empty subjects it and there in existential constructions (Dresher and Hornstein, 1979) as well as a lack of extensive verbal morphology. The latter presents problems for acquisition; a "lack" constitutes negative evidence, which is difficult to justify for learnability (Baker, 1979). English retains some verbal agreement in the irregular verbs and the third person singular present; it is not clear if and when the child realizes that it is not sufficient.

3.1 Evidence from L1 Acquisition. Although L1 acquisition research based on linguistic theory is not new, research specifically designed to address the predictions of the parameter setting model of GB is very recent and not plentiful. While there is considerable research using the REST model (Otsu, 1981; Otsu et al., 1983; Phinney, 1981; Solan, 1983; Tavakolian, 1981), only one major study has appeared treating first language acquisition within a parameterized model (Hyams, 1986), although others have recently been published (see the papers in Roeper and Williams, 1987). Hyams' study contrasted the acquisition of Italian, a null subject language, with published data in English, a non-null subject language.

Following the logic outlined above, she notes that data from early child language shows that subjects appear to be optional in many languages, including non-null subject languages like English and German. In other words,

children seem to initially assume that AGR is a proper governor for base-generated empty categories in the subject position. Hyams further suggests that at this stage, the child grammar "filters out" input data which does not fit the grammar. If the model is correct,use of empty subjects should decrease around the time that the verbal system is settled; in English, at the time auxiliaries appear. Data from Menyuk (1969) and Bellugi (1967) are cited which indicate that this is the case.

Verbal morphology in English is notoriously late in acquisition; the third person singular -s, the only remaining reflex of verbal agreement/tense is one of the last morphemes to be acquired (Brown, 1972) and the modals come in relatively late compared to the acquisition of modals in other languages with a "rich" verbal morphology. Hyams notes that the Italian children she studied acquired verbal morphology earlier than English children, making MLU comparisons impossible, and suggests that the "late" acquisition in English is due to the resetting of the parameter.

A second prediction from the model concerns the triggering data required to set the parameter. To switch from the unmarked (null subject) to the marked (non-null) subject may require specific data, possibly the semantically empty existentials it and there. Hyams argues that there is a strong correspondence between the disappearance of empty subjects in English acquisition and the appearance of it and there, further supporting the connection between these data and the parameter. It is impossible, however, to make any claims about the structure of the input required or the number of tokens necessary, since the input data from the study (Bloom, 1969) are not available. However, it has been suggested that for children, developmental factors interact with the linguistic factors, and that children will not attend to the data until they are cognitively as well as linguistically ready to do so (Roeper, 1982).

The model thus suggests connections between previously unrelated facts which are born out by the data. It also provides a principled means for cross-linguistic

acquisition studies. The parameter setting model thus provides new explanatory power for first language acquisition research.

3.2 Evidence from Second Language Acquisition. Considerable research has recently been published concerning the relevance of the model for second language acquisition, which was not directly addressed by the original framework (see Bardovi-Harlig, 1987; Flynn, 1987; Liceras, 1986; Mazurkewich, 1984; Phinney, 1987; White, 1985). The markedness-parameter framework, while directly relevant to L1 acquisition, must be altered somewhat to account for second language acquisition by adults.

First, it is generally assumed that the LAD does not function identically in adults and children. The critical period hypothesis,untenable in the strong version, nevertheless is generally assumed to hold at a weaker level, inhibiting rather than restricting second language acquisition in adulthood. In terms of the GB framework, the LAD is no longer in its unmarked CG state in adults since parameters have already been set for the first language. If the second language requires different settings for particular parameters, then they must be reset as part of the L2 acquisition process. Logically, one possibility would be to begin at the unmarked CG state; this would lead to the hypothesis that L2 acquisition should be very similar to L1 aquisition. However, the extensive literature on L1 interference would seem to indicate that a "tabula rasa" approach is not reasonable. More likely, resetting from the L1 state must occur, although there is probably some interaction with the CG markedness values.

Several proposals have been made about this interaction; generally the argument hinges crucially on the assumptions made about the markedness values of the settings. The predictions also depend on the interaction given to markedness. In L1 acquisition, it appears that a marked setting must be instantiated and triggered, that considerable input is required, and that acquisition will be "later" than with the unmarked setting. In adult L2 acquisition, other considerations intervene, including the cognitive abilities and styles of the learner, metalinguistic abilities, and the amount and kind of input.

White (1982, 1985), in comparing the second language acquisition of English and French, both non-null subject languages, argued that English was the unmarked case. She takes a data-driven view of markedness based on learnability arguments. On this basis, English is unmarked because null subject language learners hear input with empty subjects (especially existentials), which is sufficient evidence that subjects may be dropped. Non-null subject language learners, if they begin by assuming subjects may be dropped, will only hear a high percentage of sentences with subjects and never be able to decide whether subjects may be dropped in some cases. Therefore, she assumes the unmarked case is to require subjects.

Other research (Phinney, 1987, in press) assumes Rizzi's (1982) analysis, and contrasts the L2 acquisition of English and Spanish on that basis. The results indicate that Spanish students acquiring English seem to reset the null subject parameter more slowly than do English students acquiring Spanish. Spanish students typically make errors like those in (15), even at higher proficiency levels (data from writing samples).

15. a. I like to visit this place because ___ is very comfort.
    b. But ___ can be dangerous because the sea is trecherous in ocation.
    c. ___ Exist one touch of proporcionality of colors that is very interesting and beautiful.
    d. I recommend that ___ go to this place (Punta Salinas).

The sentences in (15a-c) indicate missing existential subjects; (15d) indicates a missing referential subject (you). The first type of error seems to persist longer; this may be due to the lack of semantic content in it and there as well as the fact that the empty category in the parallel constructions in Spanish may have special status (Suñer, 1982).

In contrast, English speakers acquiring Spanish show different error patterns. Often they overuse subjects (16a) or make an error in verbal agreement (16b). However, they do not insert pronominal subjects in existentials, even when they make an error in the verb (16c).

16. a. Yo llamo mi padre.
'I call my father'
b. Me acostarse a nueve.
Refl get up-inf at nine
'I get up at nine'
c. Me gusta la playa mucho y están buenas playas en Cape Cod.
'I like the beach a lot and there are good beaches on Cape Cod'

(16a) occurred in a composition which was entirely in the first person. Therefore, the pronoun was not required by context or by the grammar. In (16b), the student used the infinitive form instead of the correct verb form me acuesto. In (16c), the student erred in using están 'they are' rather than hay, "there is/are", but did not use a subject. In fact, the hay/es constructions seem to be particularly easy to acquire for English speakers. According to the logic above, this would seem to indicate an early, if partial, resetting of the parameter.

This brings up another issue, that of the resetting process itself. Although Emberson (1986) argues that resetting should be an all or nothing process, contrary to the data discussed above, the five empty subjects in (13) do not come from the same source. Empty subjects in(13a) and (13e), as well as the empty subjects in hay/es constructions, are base generated empty categories. The others result from movement rules. (13b) is derived via a subject postposing rule which is predictable for null subject languages but which does not occur in non-null subject languages. (13c) and (13d) derive via WH Movement, which is a universal rule subject to Subjacency. In (13c) there is no apparent violation of Subjacency; there is in (13d). The data in the cases of the base generated empty subjects in (13a) and (13e) are compounded by the interaction of stylistic rules which make lexical subjects possible and even highly likely in certain contexts. Thus simply resetting the parameter may not be sufficient; at the least, the postposing rule must be acquired along with the stylistic conditions for inversion and use of lexical subjects. Subjacency is also a strong universal constraint; at this time there is no evidence from L2 learners about the acquisition of sentences like (13d).

Again, the GB framework does allow us to account for certain facts. It provides a principled explanation for some types of interference and transfer, as well as predictions about directional differences in L2 acquisition. In this sense, the model does begin to approach psychological reality, at least for acquisition.

4. Pedagogical implications

In an oft-quoted statement, Chomsky (1966:37) downplayed the value of theoretical linguistic research in the application and teaching of languages.

> I am, frankly, rather skeptical about the significance, for the teaching of languages, of such insights and understanding as have been attained in linguistics and psychology.... It is difficult to believe that either linguistics or psychology has achieved a level of theoretical understanding that might enable it to support a "technology" of language teaching.

The situation has changed little since then. I do not wish to suggest that the GB framework provides direct applications to second language teaching. However, the knowledge about the acquisition process provided by this and similar research leads to implications about the language environment students need and the expectations teachers may have about their students' acquisition.

Because the framework allows for directional predictions of L2 acquisition, it suggests areas in which particular students may have difficulty or those in which acquisition may be facilitated. In this respect, the model provides a new perspective on an old technique, the interaction of cognitive, affective, pedagogical and linguistic factors, the predictions cannot be absolute. However, some general suggestions may be made, although the implementation must await more detailed research.

We should expect correlations in the acquisition of constructions related by the same parameter; as the parameter is reset, similar processes should be evident in all the

constructions, although they may be affected by other factors as discussed above. If the crucial triggering data can be determined through theory and observation, such data should probably be present in the input early and be very frequent. For example, existential sentences with it and there should be introduced early, used frequently, and recycled often. In current textbooks, this is not the case; generally these constructions are introduced once and seldom used again. If the setting for a particular parameter is marked in the target language, the related constructions should be extensively present in the input. We should expect persistence of error on marked constructions, especially when the native language is unmarked on the particular parameter and the target language is marked.

The implications of the model for the structure of the input are particularly suggestive. Given the apparently wide variety of surface structures which are related to a given parameter, as in (13), as well as the related phenomena such as "rich" verbal morphology, inversion in questions (Hyams, 1986), existential subjects, stylistic rules, subject postposing, and apparent constraint violations, it implies that the input available to the learner must be rich in a variety of language uses and contexts. It is trite to say the more evidence the better, but in practice it is not only the crucial triggering data which is needed, but a wide variety and high frequency of input as well. Simple sentences alone, for example, will not provide sufficient evidence on the stylistic rules needed to postpose subjects appropriately in Spanish, or on the conditions governing optional use of lexical subjects. Ultimately, detailed research on the parameters and their acquisition in both first and second language contexts may help teachers "cluster" input to be more effective, although it may not be desirable or necessary.

The framework presented here provides an initial explanation of several phenomena which language teachers are familiar with but which defy conventional explanations. For example, the slow acquisition of apparently "simple" constructions like the third person singular present tense -s ending is explained by the fact that English is a non-AGR language; the residual ending thus does not fit the pattern. Long-term interference in use of subjects and existential subjects is also accounted for by the markedness conditions.

5. Conclusion

I began this paper by stating that the relevance of linguistic theory to language acquisition and language teaching has often been felt to be tenuous at best. With the use of a framework like the GB approach, which is structured to be learnable, psychologically real, and a model of acquisition as well as of language, we now have a theory which is directly relevant to both first and second language acquisition. The parameterized model of grammar appears, even in these early stages, to hold great promise as a source of hypotheses about the language acquisition process. The research indicates that the framework is both predictive and explanatory, and begins to approach Chomsky's (1965) goals of adequacy. Considerable research is needed, especially on the correlative nature of various modules of the grammar and the additional factors which interact with the linguistic acquisition process. However, the existing research provides strong evidence for the grammar and the acquisition model.