CHAPTER 3

UNIVERSAL GRAMMAR AND SECOND LANGUAGE ACQUISITION: CURRENT TRENDS AND NEW DIRECTIONS

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I. INTRODUCTION

As Gregg (1989, chap. 2, this volume) reminds us, a theory of language acquisition depends on a theory of language. We cannot decide how something is acquired without having an idea of what that something is. Researchers working on Universal Grammar (UG) in second language (L2) acquisition adopt a currently well-developed theory of language, namely the principles and parameters approach, as realized in Government Binding (GB) theory and subsequently (Chomsky, 1981, 1986). This theory of grammar is itself grounded in concerns about language acquisition, especially the so-called logical problem of language acquisition, the problem being to account for the fact that one ends up knowing far more than is provided by linguistic input (Hornstein & Lightfoot, 1981). The solution offered to this problem is the postulation of a system of innate principles and parameters that form the content of UG. In this chapter, I will look at the role of UG in L2 acquisition, considering past research, present emphases, and future directions.

II. PRINCIPLES AND PARAMETERS THEORY

The principles and parameters framework has a dual aim: to characterize the native speaker's (NS) knowledge of language, or linguistic competence, and to

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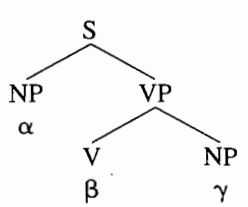
explain how the acquisition of such competence is possible. In this approach, it is argued that much of our linguistic competence stems from innate knowledge, which takes the form of a UG. Linguists motivate UG by pointing to the end result of language acquisition, namely the adult grammar. They argue that the input alone is simply insufficient to allow the child to attain full adult competence. Our linguistic competence extends beyond the input in various ways: for instance, children and adults can understand and produce sentences that they have never heard before; they know that certain structures are not possible and that others are ambiguous, without being explicitly taught such things. Apart from dialectal differences, the competence of adult NSs of the same language is essentially identical; that is, adults achieve the same end result (a complex competence grammar), despite varying exposure to data in the course of acquisition—they may have heard different input, or the same input in different orders, or they may not have been exposed to certain kinds of input at all.

In this framework, first language (L1) acquisition is assumed to proceed on the basis of naturalistic positive evidence (utterances in the input that children are exposed to) interacting with innate principles and parameters of UG. The input data "trigger" properties of UG (Lightfoot, 1989). That is, they cause UG parameters to be set without learning having to take place. Negative evidence (information about ungrammaticality) plays a minimal role.

A. Principles: C-Command

As an example of subtle knowledge that forms part of the NS's unconscious knowledge of language, consider the notion of c-command, an abstract structural dominance relationship that plays an important role in many aspects of GB theory. C-command is defined as follows: a category α c-commands another category β if and only if the first branching node dominating α also dominates β. To see how this works, consider the tree in (1):

(1)



The first branching node dominating the noun phrase (NP) α is the sentence (S). This S also dominates the verb (V) β and the NP γ. Therefore, α c-commands both β and γ. β and γ, on the other hand, do not c-command α, because the first branching node dominating them is the verb phrase (VP), which does not dominate α. They do, however, c-command each other. (Chapter 5 by Schachter, this volume, includes additional discussion of the notion of C-command.)

Now let us consider some examples of c-command at work in English, by looking at the behavior of anaphoric pronouns like reflexives. A reflexive pronoun must have a local antecedent within the same clause, as can be seen in (2), where coreference between *Mary* and *herself* is possible in (2a) (as indicated by the subscripts) but not in (2b) or (2c):

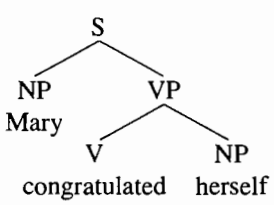
(2) a. Mary_i congratulated herself_i.
b. *Mary_i said that Susan congratulated herself_i.
c. *Mary_i told Susan to congratulate herself_i.

It is not sufficient for the antecedent to be within the same clause, however; it must also bear a particular structural relationship to the reflexive. The sentences in (3) are ungrammatical, even though there is a plausible antecedent within the same clause. (3a) shows that the antecedent cannot follow the reflexive, and (3b) shows that it is not sufficient for the antecedent to precede the reflexive (i.e., that *Mary* cannot be the antecedent, although *Mary's sister* can):

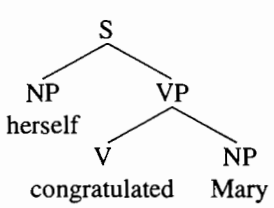
(3) a. *Herself_i congratulated Mary_i.
b. *Mary_i's sister congratulated herself_i.

In fact, the antecedent of a reflexive must c-command it. The ungrammatical cases are the consequence of a failure of c-command, as can be seen in (4). In (4a), the NP *Mary* c-commands *herself,* whereas in (4b) it does not.

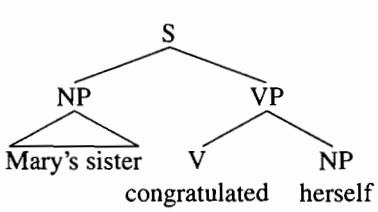
(4) a.



b.



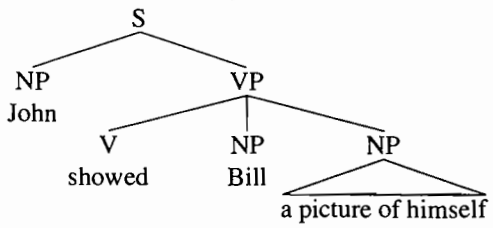
c.



The c-command condition also allows for ambiguous sentences, as in (5). Both *John* and *Bill* c-command *himself,* as shown in (6); hence, either NP can serve as the antecedent of the reflexive.

(5) John showed Bill a picture of himself.

(6)



It is most unlikely that children are ever taught the c-command condition on anaphors when they acquire their L1, nor does this information seem to be inducible from the language that they hear. Yet they come to know that sentences like (2b) or (3a) are ungrammatical, whereas sentences like (5) are ambiguous. Hence, it is argued that c-command, along with many other such abstract properties, must be universal and part of the innate knowledge that children bring to the task of L1 acquisition, in other words, part of UG. L1 acquisition research suggests that children show mastery of the c-command requirement on reflexives at an early age (Wexler & Chien, 1985).

B. Parameters: Verb Raising

As well as abstract principles and structural relationships like c-command, UG also contains parameters, which are principles that differ in the way they work from language to language. The differences are accounted for by incorporating a limited number of options into UG. Parameters account for clusters of properties, which superficially seem to be unrelated. The idea is that parameters give the child advance knowledge of what the possibilities will be, that is, they limit the range of hypotheses that have to be considered. Parameter settings are fixed on the basis of input from the language being acquired.

An example is provided by certain differences between French and English (Emonds, 1978; Pollock, 1989). English and French behave differently regarding negative placement, as can be seen by comparing (7a) and (7b), question formation, as in (8a) versus (8b), adverb placement, as in (9a) and (9c) versus (9b) and (9d), and quantifier positions, as in (10a) and (10c) versus (10b) and (10d):

(7) a. *John likes not Mary.
b. *Jean n'aime pas Marie.*

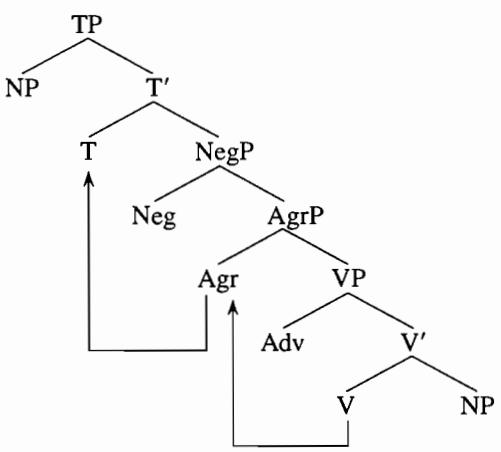
(8) a. *Likes she John?
b. *Aime-t-elle-Jean?*

(9) a. *John watches often television.
b. *Jean regarde souvent la télévision.*
c. Mary often watches television.
d. **Marie souvent regarde la télévision.*

(10) a. *My friends like all Mary.
b. *Mes amis aiment tous Marie.*
c. My friends all like Mary.
d. **Mes amis tous aiment Marie.*

According to Pollock (1989), these apparently different properties can all be traced to one parametric difference between the two languages, namely whether the language allows verb raising. French has verb movement: all finite verbs must raise through Agreement (Agr) to Tense (T), in contrast to English where main verbs may not raise. This verb movement is shown in (11).[1]

(11)



The verb-movement analysis accounts for the French–English differences in the following way. In French, the finite verb must raise to T (for reasons which I will not go into here), explaining why negative *pas* is postverbal in (7b), why questions are formed by "subject–verb inversion"[2] in (8b), and why adverbs occur to the right of the verb in (9b). Assuming that quantifiers occupy the same positions as adverbs, (10b) and (10d) are also accounted for. In English, verb-raising is prohibited, accounting for the impossibility of postverbal negation in (7a), for the lack of inversion with main verbs in (8a), and for the

[1] The parameter involves the "opacity" versus "transparency" of the category Agr; opaque Agr prevents verb-movement, for reasons to do with theta-role assignment (Pollock, 1989).

[2] Inversion results because the verb subsequently raises to the complementizer (C) position, which is to the left of the subject.

placement of adverbs and quantifiers immediately to the left of the verb, as in (9c) and (10c).

The parameter thus accounts for a cluster of properties; the idea is that these properties do not have to be learned separately by the L1 learner. Indeed, the child does not have to learn about verb movement at all. Rather, the possibility is built in as part of UG, and there is ample evidence from simple sentences to trigger the adoption of the appropriate setting. For example, the position of the negative *pas* in French indicates that the verb has moved, whereas the position of *not* in English indicates that it has not.[3] From such evidence, the parameter is "set" and the cluster of properties associated with ± verb movement emerges. (For additional discussion of verb raising or verb movement see chapter 14 by Berent, this volume.)

III. PRINCIPLES AND PARAMETERS IN L2 ACQUISITION

Principles and parameters theory has attracted considerable attention as a potential component in a theory of L2 acquisition (see Flynn, chap. 4, this volume, Gregg, chap. 2, this volume, and White 1989b, for detailed review). Linguistic theory, of course, says nothing directly about L2 acquisition. At a descriptive level, principles and parameters identify universal properties of grammars; at an explanatory level, these properties are assumed to be innate in the L1 learner, accounting for various aspects of acquisition. It is up to an L2 acquisition theory to offer an account of how such principles and parameters might play a role in L2 acquisition.

If the aim of an acquisition theory is (in part) to explain the acquisition of linguistic competence in an L2, it is crucial to have a theory of linguistic competence to provide a general frame of reference. Current linguistic theory offers both a highly detailed account of what linguistic competence consists of, as well as some general indication of how that competence is acquired, via the assumption of an innate UG operating at least in L1 acquisition. Less well worked out, within this framework, is a developmental theory (see Gregg, chap. 2, this volume) of how UG is implemented in developmental stages, although work on parameter resetting (Hyams, 1986), triggering (Lightfoot, 1989), and learning principles like the Subset Principle (SP) (Berwick, 1985; Wexler & Manzini, 1987) and the Uniqueness Principle (UP) (Pinker, 1984) all contribute to the developmental question. As far as L2 acquisition is concerned, an L2 acquisition theory can take as a working hypothesis that L2 learners do (or do not) still have access to abstract

[3]For this triggering to take place, the child has to be able to analyze the input appropriately (i.e., categories such as *verb* and *negative* must be isolated and recognized) but that is all.

principles like c-command and parameters like verb-movement, in order to establish the exact nature of L2 competence and to account for its acquisition. The L2 developmental question can also be addressed by looking at issues like parameter resetting, triggering data, learning principles, and so forth.

Not surprisingly, work in L2 acquisition done from the principles and parameters perspective has centered on the issue of the availability of UG. Arguments in favor of a role for UG in L2 acquisition hinge on the logical problem of L2 acquisition: L2 learners often end up with a highly complex unconscious mental representation of their L2 (not necessarily identical to an NS's grammar), which is underdetermined by the L2 input, suggesting that built-in knowledge must be involved (White, 1985a, 1989b). Proponents of the position that UG is available have investigated whether L2 learners in fact show evidence of observing principles of UG and whether UG parameter settings hold of the interlanguage (IL) grammar. The logical problem is addressed by investigating the nature of IL grammars: Are they constrained by UG? Are they so constrained at every stage? The developmental problem is addressed by considering whether L2 learners reset parameters (leading to different stages of development) and what kind of input or what kinds of learning principles contribute to L2 developmental stages.

Arguments against UG in L2 acquisition emphasize difficulties faced by L2 learners, and differences between L1 and L2 acquisition, both in the course of development and in the end result; it is claimed that such differences can best be explained on the assumption that UG is no longer available to adult L2 learners, and that there is a fundamental difference between L1 and L2 acquisition (Bley-Vroman, 1990; Clahsen & Muysken, 1986; Schachter, 1989, chap. 5, this volume). Proponents of this position seek to show that ILs are not constrained by UG, that learners violate UG principles, and that developmental stages cannot be accounted for in terms of parameter resetting.

A. Access to UG: Competence and Acquisition of Competence

In much of the research into UG availability, the working assumption has been that if learners can be shown to violate principles of UG, then UG cannot be available to L2 learners, whereas if they observe UG constraints, UG must be available. The question of access or no access is addressed by taking the performance of NSs of the L2 as a criterion and then comparing the performance of L2 learners with the NSs. This is done explicitly by use of NS controls or implicitly by accepting current proposals in linguistic theory. Because NSs are necessarily constrained by UG, the assumption is that if L2 learners perform similarly to NSs, they must also be constrained by UG, whereas if they perform differently, they are not. (See chapters 2 by Gregg and 4 by Flynn for competence/performance in L2 acquisition.)

Such direct comparison of L2 learners and NSs is not without problems, however. It neglects the fact that UG permits a range of grammars. As a number of researchers have reminded us over the years, the L1 or L2 learner system needs to be considered in its own right (Birdsong, 1989; Bley-Vroman, 1983; Schwartz & Sprouse, 1994; Sharwood Smith, 1992; White, 1982). Although one can take as the null hypothesis that similar linguistic behavior on the part of NSs and nonnative speakers (NNS) has the same origin (a competence grammar constrained by UG), if the behavior is not the same, one cannot automatically conclude that lack of UG is the reason. The native system is only one of a number of possible grammars permitted by UG. "Nontarget" linguistic behavior, then, has at least two potential causes: lack of UG or availability of UG but with the learner coming up with a different system from the NS.

Thus, one needs to distinguish between *what* and *how* in the acquisition of L2 competence. What is the nature of L2 competence (or mental representation)? How is that competence acquired? Of course, these questions are linked in the principles and parameters framework, in that UG both determines the nature of competence (it must be UG-constrained) and guides the L1 acquirer (certain hypotheses are never entertained). Here, I will consider three possible scenarios for L2 acquisition, which arise if one distinguishes between competence (what) and acquisition of competence (how).[4] (The range of alternative theoretical positions on the role of UG in L2 acquisition is also described in chapters 2 by Gregg, 4 by Flynn, and 5 by Schachter, this volume.)

Position 1: Same competence, same means of acquisition. NSs and NNSs have the same or similar competence, arrived at by the same means. The claim is that L2 learners (including adults) show evidence of observing principles of UG and acquire appropriate L2 parameter settings. Hence, their competence is similar to that of NSs, and this is because of the availability of UG. This position is fairly standard in the UG debate (e.g., Flynn, chap. 4, this volume). For child L2 acquisition, there appears to be a general presumption that this position is correct.

Position 2: Different competence, different means of acquisition. NSs and NNSs have different competence, arrived at by different means. This is a standard position among people who believe in the inaccessibility of UG (e.g., Schachter, chap. 5, this volume). The assumption is that if one can show that L2 learners'

[4]There are many more than three possibilities, if one allows for the fact that linguistic behavior (or performance) can differ from competence in a variety of ways, and that similar behavior may result from different competences. This issue is taken up in section IV, which discusses learners whose performance is near-native. In some cases, their competence may diverge from that of NSs even though their performance appears not to. In addition, there are several other possible scenarios if one also considers learning principles associated with UG, and whether or not they remain available.

linguistic performance differs from NSs in some UG domain, this reflects a difference in linguistic competence, which in turn must be due to unavailability of UG and use of alternative means of learning the L2, for example the L1 grammar and problem solving.

Position 3: Different competence, same means of acquisition. NSs and NNSs have different competence, arrived at by the same means. For adult L2 acquisition, this position is advanced more and more frequently, the claim being that IL grammars are "possible grammars" (or natural languages) in a technical sense. L2 learners, it is argued, come up with grammars that are constrained by UG but that are not necessarily the same as the L2 grammar; the IL grammar may show properties of the L1 grammar, or, more interestingly, it may be like neither the L1 nor the L2 (Broselow & Finer, 1991; du Plessis, Solin, Travis, & White, 1987; Martohardjono & Gair, 1993; Schwartz & Tomaselli, 1990; White, 1992a). For people to have different grammars arrived at by the same means is, of course, the standard situation holding true of NSs of two different languages, say French and Chinese. The NS of French has a mental representation that differs from that of the NS of Chinese; nevertheless, they have both been acquired via UG. It is also the case that in L1 acquisition the learner may have a UG-constrained grammar that differs from that of an adult NS. The difference between L1 and L2 acquisition here is that L2 learners do not necessarily converge on the same grammar, in contrast to L1 acquirers.[5]

Positions 1 and 3, then, have in common the assumption that UG constrains L2 acquisition. They differ in terms of the mental representation that the L2 learner arrives at. Indeed, the two positions are not mutually exclusive. That is, it is possible for a learner to have a mental representation that differs from a NS at certain stages but that eventually converges on a nativelike grammar. This situation is, as mentioned above, characteristic of L1 acquisition. One of the outstanding questions in current theorizing must be why some L2 learners, perhaps the majority, end up with a grammar that is different from NSs, so that Position 3 characterizes not just stages of development but their ultimate attainment.

Because of the situation described in Position 3, one cannot assume that evidence that L2 learners behave differently from NSs is automatically evidence against UG. We therefore need careful analyses of learner grammars as systems to be considered in their own right with respect to the UG question.

[5] A fourth possibility is that NSs and NNs have similar competence, arrived at by different means. A version of this position is advanced by Bley-Vroman (1990). On the whole, he argues that the competence of NSs and NNSs is essentially different and that different mechanisms are involved (hypothesis-testing rather than UG in the case of L2 learners). However, in certain cases, where L2 learners appear to be successful in acquiring nativelike competence, he attributes this to knowledge derived from the mother tongue, rather than directly from UG.

B. Perspectives on Principles

Evidence for Position I

An important question in investigations of UG in L2 acquisition has been whether IL grammars are constrained by UG principles. A recent example of evidence that UG is available to adult learners is provided by Thomas (1991), who investigates the L2 acquisition of various properties of reflexive binding, including the c-command constraint described in section II.A. To test whether learners were aware of the c-command constraint on antecedents of reflexives in Japanese, Thomas's study included adult learners of Japanese, at various levels of proficiency. Japanese sentences to be judged included ones quite similar to (3b), repeated below:

(3) b. *Mary$_i$'s sister congratulated herself$_i$.

Thomas found no significant differences between Japanese controls and learners at any level of proficiency: the majority of responses allowed only the c-commanding NP as the antecedent. This suggests that the c-command constraint is available in L2 acquisition.

A further issue is whether access to UG is mediated via the L1 grammar. In the case of c-command, it might be that the L2 learner's knowledge of c-command comes only from the L1 rather than from UG directly. In order to address the question of whether access depends on the L1 grammar, a number of researchers have isolated situations where on the basis of the way principles of UG operate in the L1, the learner could not acquire the relevant properties of the L2. If learners in such situations show evidence of observing UG principles, this suggests that UG is available in nonprimary acquisition, because access could not have been solely via the L1.

A recent study following this logic is White, Travis, and Maclachlan (1992) who present evidence that suggests that Malagasy learners of English observe constraints on wh-movement in English, even though these constraints operate very differently in the two languages. In Malagasy, extraction from complex subjects is permitted, whereas in English extraction from subjects is prohibited. In addition, object extraction and extraction from complex objects are freely allowed in English but are ungrammatical in Malagasy. Given these differences between the two languages, it is not clear how Malagasy learners should know that extractions out of subjects are not permitted, or what constraints apply to extracted objects. If UG is only accessible via the L1, once Malagasy learners acquire English wh-movement, they should not show evidence of observing the relevant constraints. Rather, one might expect them to make incorrect generalizations about wh-movement, and to violate various constraints in the process. If UG is directly accessible, on the other hand, constraints on wh-movement should be observed once wh-movement in the L2 is acquired.

Subjects for this study were low- and high-intermediate adult Malagasy learners of English. Subjects took two tests, a grammaticality judgment task and a written elicited production task. Both tasks tapped learners' knowledge of grammatical wh-question formation in English, as well as various principles of UG that constrain wh-movement. Results show that almost all the high-intermediate group and about half of the low-intermediate group perform like a native English-speaking control group: they have acquired grammatical wh-movement in English and do not violate constraints on movement; that is, they reject violations in the judgment task and do not produce violations in the production task. Those subjects in the low-intermediate group who incorrectly accept or produce violations of constraints are also inaccurate on grammatical wh-questions, suggesting that they have not yet acquired English wh-movement and thus that the relevant principles constraining movement are not yet in operation. (In other words, these learners constitute an example of Position 3, rather than Position 2.) Thus, these results suggest that the L1 is not the only source of the learners' UG-like knowledge. Rather, principles of UG remain accessible in adult L2 acquisition.

Evidence for Position 2

In contrast to the above position, other researchers argue that L2 learners do not have direct access to UG; they either have no access at all (Clahsen & Muysken, 1986) or access only via the L1 (Bley-Vroman, 1990). Thus, their grammars are different from NSs, as well as their means of acquisition. Schachter (1989, 1990, chap. 5, this volume) provides an example of this latter position. In experimental investigations of access to the Subjacency Principle (a principle constraining wh-movement) by L2 learners, she has found that NSs of languages that do not instantiate Subjacency because they lack syntactic wh-movement (i.e., Korean and Chinese) show no evidence of observing Subjacency in the L2, in contrast to learners whose L1s do instantiate Subjacency (i.e., Dutch). That is, Korean and Chinese speakers fail to recognize Subjacency violations in English, unlike Dutch speakers 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. (For additional discussion of this and other empirical studies of Subjacency in L2 acquisition see chapters 4 by Flynn, 5 by Schachter, and 10 by Gass, this volume.)

Evidence for Position 3

When one compares learners' results with natives, who correctly reject the vilations in question, Schachter's conclusion indeed seems reasonable. However, as discussed in section III.A, when the IL grammar appears to diverge from the grammar of NSs, it is important to explore the nature of the L2 learner's representation in more detail in order to determine whether it is or is not a natural language system. For example, as proposed by Martohardjono and Gair (1993) and by

White (1992c), it might be that Korean and Chinese-speaking learners lack wh-movement in complex sentences and use *pro* as their empty category rather than a wh-trace, as is the case in their L1s. Since *pro* is not subject to Subjacency, the violations in their grammars are more apparent than real. Their wh-questions have a different underlying structure from those of NSs of English. Thus, L2 learners have a different competence but still a UG-constrained competence. In this case, that competence is influenced by the L1 grammar, in terms of the empty categories that are permitted in the IL grammar.

C. Perspectives on Parameters

Evidence for Position 1

Much of the pioneering work on UG in L2 acquisition looked at the operation of parameters (Flynn, 1984; Liceras, 1988; White, 1985b). Position 1 is exemplified by the work of Flynn (chap. 4, this volume), who has used experimental findings on L2 acquisition of branching direction and anaphora to argue that L2 learners successfully acquire L2 parameter settings by means of UG, without going through a phase of applying the L1 settings to the L2. (She does not, however, rule out a role for the L1 but sees this as a potential source of difficulty and delay in acquiring the L2 setting when L1 and L2 do not match in their parameter settings.)

Other results that indicate successful acquisition of the L2 parameter setting without applying the L1 setting are reported by White (1992a) who shows that francophone learners of English never assume that the verb in English can raise to T (see [11]), even though this is required in French. Sentences like (7a) and (8a), repeated here, are not considered to be possible by francophone learners of English, suggesting that the parameter has been reset, in this aspect at least.

(7) a. *John likes not Mary.
(8) a. *Likes she John?

(Nevertheless, although the impossibility of verb movement to T is acquired almost immediately by L2 learners, they have considerable problems with movement to Agr.)

Evidence for Position 2

Position 2 for parameters claims that IL grammars cannot be described in terms of parameter settings, or that, at best, L2 learners will exemplify L1 settings but will be unable to reset these, because UG is no longer available. The strongest case for this position has been argued for by Clahsen and Muysken (1986), who try to show that L2 learners do not have a parameter-based grammar at all. Clahsen and Muysken argue that adult L2 learners of German have an "unnatural" grammar, allowing nonfinite verbal elements to move rightwards to the end

of the sentence, whereas L1 learners have a natural grammar that moves finite elements leftwards. In particular, L2 learners lack parameters associated with word order (as well as other principles of UG) and are thus incapable of handling L2 word order in a manner that is consistent with UG. Arguments against this analysis have been advanced by du Plessis et al. (1987) and by Schwartz and Tomaselli (1990), who show that the behavior of adult learners of German is indeed UG constrained, with a number of interacting parameters being set such that these learners have an IL grammar that resembles that of neither the L1 nor the L2 (i.e., Position 3).

Evidence for Position 3

The investigation of parameters in L2 acquisition has been particularly relevant to the issue of whether access to UG is mediated via the L1. A number of researchers have reported that L1 parameter settings are adopted by L2 learners, at least in initial phases (e.g., Phinney, 1987; White, 1985b). Such results can be taken as evidence for Position 3; that is, the learner has a different competence from the NS, but it is UG-constrained. Unfortunately, these results are also consistent with Position 2; if learners acquire the L2 without UG but with the aid of their L1 grammar, then L1 parameter settings are also predicted. The difference is in the predictions made on parameter resetting: Position 2 predicts that no parameter resetting should be possible.

A number of researchers investigating parameters in L2 acquisition have argued that some L2 learners arrive at parameter settings that are those of neither the L1 nor the L2 but which do, nevertheless, represent possibilities found in natural languages (du Plessis et al., 1987; Finer & Broselow, 1986; Schwartz & Tomaselli, 1990; Thomas, 1991). These cases provide much stronger evidence that UG is still available; on a theory that denies the existence of UG in L2 acquisition, there is no reason why learners should arrive at parameter settings that are exemplified in neither language.

Some of these studies concern reflexive binding in L2 acquisition, to which we now turn. Languages differ as to whether they require a reflexive to have a local antecedent or whether they allow long-distance binding of reflexives. In languages like English, only local binding is permitted, whereas in languages like Japanese, the antecedent can also be nonlocal. In languages like Russian, a local antecedent is required in a tensed clause but not in a nonfinite clause. Thus, considering sentences like those in (2), repeated here, and looking at whether *Mary* can serve as antecedent of the reflexive, binding is only possible in (2a) in English. In contrast, Japanese also permits binding in (2b) and (2c). In Russian, binding is permitted in (2c) but not in (2b).

(2) a. Mary_i congratulated herself_i.
b. Mary_i said that Susan congratulated herself_i.
c. Mary_i told Susan to congratulate herself_i.

Wexler and Manzini (1987) account for these differences in terms of a parameter, the Governing Category Parameter (GCP), which specifies the locality domains within which an anaphor, such as a reflexive, must be bound. A number of studies have investigated what values of the GCP are adopted by L2 learners, looking at cases where the L1 (Chinese, Japanese, or Korean) allows nonlocal binding, whereas the L2 (English) requires local binding, as well as cases where the L1 and L2 both require local binding (Spanish and English), cases where L1 and L2 both require nonlocal (Chinese and Japanese), and cases where the L1 requires local and the L2 nonlocal (English and Japanese) (Finer, 1991; Finer & Broselow, 1986; Hirakawa, 1990; Thomas, 1989, 1991). Some of the most interesting results from these studies suggest that some L2 learners adopt parameter values that do not derive from the L1 and that are not appropriate for the L2. For example, Finer and Broselow (1986), Finer (1991), and Hirakawa (1990) report that Japanese and Korean learners of English are significantly more likely to allow nonlocal binding in sentences like (2c) than in sentences like (2b). Because the tensed–nontensed distinction does not exist in the L1 and does not distinguish binding possibilities in the L2, Finer and Broselow suggest that these learners are adopting the "Russian" value of the parameter.[6] (The role of GCP in L2 acquisition is also discussed in chapters 5 by Schachter and 10 by Gass, this volume. Chapter 14 by Berent includes a treatment of the GCP in the acquisition of English by deaf learners.)

A related finding is that of Thomas (1989, 1991). She finds that her Spanish subjects, like her Chinese and Japanese subjects, accept nonlocal binding in sentences like (2b). For the Chinese and Japanese subjects, this could indicate adoption of the L1 setting, whereas for the Spanish it could not, because Spanish, like English, requires local binding.

Such results suggest that, for whatever reason, learners are sometimes able to arrive at parameter settings permitted by UG but not exemplified in the L1 or the L2. Findings like this are problematic for Position 2, because, if learners are going to depart from their L1-based grammars without access to UG, one might expect them also to allow coreference possibilities that are not found in natural languages. (See Thomas, 1991, for examples and evidence that this is not the case.)

However, the finding of UG-based settings exemplified in neither language itself raises questions. Acquisition involves an interaction of UG, the existing grammar, and the input. Thus, it makes sense if learners adopt L1 settings, based on their existing grammar, or if they adopt L2 settings, based on the L2 input interacting with UG. But where do the other possibilities come from? A possible solution in the case of the binding results is offered by Progovac and Connell (1991). In line with many current proposals, their analysis of binding assumes that governing categories are not parameterized. Rather, there are two types of anaphors,

[6] This is not Hirakawa's interpretation of her results. She argues that in fact the L1 setting has been adopted, because subjects also allow nonlocal binding in sentences like (2b).

namely, morphologically complex phrasal anaphors that require local binding, such as *himself, herself* in English, and morphologically simple head anaphors that allow nonlocal binding, like *zibun* ("self") in Japanese. In addition, languages vary as to whether Agr is realized. Progovac and Connell argue that head anaphors are bound to the nearest available head, namely Agr, accounting for long-distance binding over nonfinite clauses (which lack Agr) in languages like Russian. In addition, in languages without Agr, such as Chinese, they propose that reflexives have no governing category at all, hence long-distance binding is possible across any clause boundary.[7] This analysis provides a neat explanation for the behavior of L2 learners in the above studies. The Spanish learners of English, who accept long-distance binding even though this is possible in neither the L1 nor the L2, are misled into thinking that English lacks Agr because agreement in English is impoverished when compared to agreement in Spanish. This in turn leads them to treat English like Chinese, permitting nonlocal binding in general. Furthermore, the behavior of the Japanese who accept nonlocal binding only over nonfinite clauses can also be explained: because English agreement appears rich with respect to agreement in Japanese, they correctly assume that English is (+Agr) but treat English like Russian, where long-distance binding is only possible out of clauses lacking Agr.[8] Thus, the adoption of parameter settings that are exemplified in neither language is nevertheless explicable in terms of an interaction of UG and the L2 input, with the L2 input misanalyzed because of properties of the L1 grammar.

This still leaves a crucial question: why do some L2 learners get stuck (i.e., fail to converge on the L2 grammar), whereas others do not? Why, for example, do some Spanish learners of English successfully reanalyze the L2 such that they realize that English does have Agr and local binding of reflexives, whereas others fail to reanalyze? In L1 acquisition, where different intermediate grammars are also found, no one gets stuck. This is a question that clearly needs further investigation if we are to arrive at a more complete understanding of L2 acquisition.

It has been suggested in this section that some parameters are "incorrectly" set because of properties of the L2 input interacting with UG and the current grammar. Presumably, the potential for misanalysis will vary, depending on what language is the L1 and what the L2, as well as on properties of the L2 input data.

Positive and Negative Evidence and Parameter Resetting

Issues relating to L2 input have been the subject of considerable investigation by researchers interested in the role of UG in L2 acquisition. Much early work on learnability focused on the availability of a learning principle, the SP, to L2

[7] Progovac (1992) offers a slightly different analysis of the Chinese facts.

[8] This account of L2 learners' behavior will only work if learners also misanalyze English as having a head rather than a phrasal anaphor. Progovac and Connell (1991) argue that this is indeed the case, as does Bennett (1994).

learners, as well as the implications of the operation or nonoperation of this principle. The SP is a learning principle that has been postulated in order to guarantee acquisition without negative evidence; this principle causes learners to be conservative, preventing them from adopting overinclusive parameter settings in the absence of explicit evidence (Wexler & Manzini, 1987). Most of the evidence pointed to the unavailability of this principle in L2 acquisition (Finer & Broselow, 1986; White, 1989a), suggesting that the potential status of negative evidence in L2 acquisition might be different from its status in L1. However, recently there have been suggestions that the SP is misconceived. Hermon (1992) and McLaughlin (1995) both argue that there are in fact no cases of parameters of UG yielding languages in a subset–superset relationship, hence no potential problem of overgeneralization and no need for a SP.[9] (The SP and its putative role in L2 acquisition are also discussed in this volume, chapters 2 by Gregg, 10 by Gass, and 13 by Long. Chapter 14 by Berent includes discussion of the SP in the acquisition of English by deaf learners and chapter 18 by Seliger suggests a role for the SP in accounting for primary language attrition. Finally, chapter 16 by Andersen and Shirai applies the notion to the acquisition of verb aspect.)

Those interested in L2 learnability now focus on the nature of the triggering data in L2 acquisition. Many L2 learners are not exposed to the same kind of input as L1 learners. The positive input is often different in nature (more formal, less naturalistic, containing incorrect forms produced by others in the classroom) and negative input may also be available (in the form of correction and certain kinds of grammar teaching). The question arises as to whether the different kinds of input available in L2 acquisition are in fact appropriate for triggering principles and parameters, and whether inappropriate input places limitations on the operation of UG.

Recently, there has been increasing theoretical discussion and experimental investigation of the extent to which positive L2 evidence triggers parameter resetting, of the potential role of negative evidence, of what precise properties of L2 input serve as triggers for parameter resetting, and of the successes and failures of L2 classrooms in providing appropriate input (Felix & Weigl, 1991; Schwartz, 1993; White, 1991a; White, Spada, Lightbown, & Ranta, 1991). In a number of experimental studies, attempts have been made to control fairly precisely the kind of input available to the L2 learner and to determine whether negative evidence, explicit positive evidence, or naturalistic positive evidence can lead to parameter resetting in the L2 classroom (Trahey & White, 1993; White, 1991a, 1991b). In these studies, experimental groups get a particular kind of input, whereas control groups do not, thus allowing one to determine precisely what the effects of different kinds of L2 input are.

For example, White (1991a, 1991b) shows that francophone learners of English

[9] It should, however, be noted that although these researchers may have succeeded in showing that the SP is not needed in practice (because no parameters so far proposed meet the Subset Condition), they have not been able to eliminate it in principle.

incorrectly assume that English, like French, allows raising of the main verb over an adverb, one of a cluster of properties associated with the verb raising parameter proposed by Pollock (1989) (see section II.B), leading learners to accept and produce sentences like (9a) (repeated below) where the adverb intervenes between verb and object (SVAO word order):

(9) a. *John watches often television.

White argues that these learners have adopted the L1 parameter setting (permitting verb raising over an adverb) and that the errors are such that negative evidence will be required to eliminate them because SVAO order is nonoccurring in English and there appears to be nothing in the input that indicates that the order is ungrammatical; in other words, learners may require negative evidence to reset parameters in certain cases.[10]

White compares two groups of grade 5 and 6 francophone students (aged 11–12 yr) in intensive English as a Second Language (ESL) programs in Quebec, Canada. One group received two weeks of explicit instruction on adverb placement in English, including explicit positive and negative evidence on word order in English sentences containing adverbs. The second group received no instruction on adverbs; it was assumed that this group would receive positive evidence concerning adverb placement in English through naturalistic input in the classroom (but no information about ungrammaticality).[11] In essence, what White set out to investigate was whether exposure to positive evidence alone (as provided to the second group) would cause the elimination of an ungrammatical word order, or whether negative evidence (as supplied to the first group) would be necessary. Subjects were pretested immediately prior to the experimental treatment, posttested immediately afterwards, and again 5 wk later, on three different tasks. Results show that both groups started out with the L1 parameter setting, accepting and producing SVAO order in English. Only the group that received explicit instruction and negative evidence on adverb placement revealed knowledge of the impossibility of SVAO order in English.

However, the assumption that negative evidence is necessary for parameter resetting here neglects the possibility that there is positive L2 input to show that the L1 value must be incorrect (Schwartz & Gubala-Ryzak, 1992; White, 1992b). For example, input like that in (9c) (repeated here) shows that the verb has not raised past the adverb, hence that English is not like French:

(9) c. Mary often watches television.

[10] See Schwartz (1992, 1993) for arguments that negative evidence is too explicit to tap unconscious parameter-setting mechanisms.

[11] However, audiotapes subsequently revealed that spontaneous use of adverbs was extremely limited in these communicative classrooms. Thus, although it was originally thought that this group would be exposed to naturally occurring classroom input on adverb placement, this turned out not to be the case; rather, these subjects apparently received little or no input containing adverbs.

In another study, Trahey and White (1993) look at whether an "input flood" of positive evidence alone is sufficient to lead to parameter resetting. They show that supplying positive evidence, including sentence types like (9c), in the L2 classroom does not trigger the appropriate L2 value of the parameter. A further group of grade 5 francophone children in the intensive program were exposed to a 2-wk-long input flood of specially prepared materials containing English adverbs used naturalistically. No form-focused instruction or negative evidence on adverb placement was provided. As before, subjects were pretested immediately prior to the input flood, posttested immediately afterwards, and again 3 wk later, this time on four different tasks. All tasks reveal a dramatic increase in use of the grammatical English order where the adverb precedes the verb (SAV) but little or no decline in use of the ungrammatical SVAO order.

The results thus suggest that positive evidence did not serve to preempt the L1 parameter setting in this case; acquiring the correct English SAV order did not lead to loss of incorrect SVAO. Such results might seem problematic for the claim that UG mediates L2 acquisition: If naturalistic positive L2 input does not trigger parameter resetting for child L2 learners, how can one really maintain the claim of the availability of UG? However, other results indicate that L2 parameter resetting takes place on the basis of positive evidence with very little difficulty at all, that is, the L2 input appears to play a genuinely triggering role. As mentioned in section III.C, White (1992a) shows that francophone learners of ESL do not assume that the verb in English can raise to T (cf. 11). That is, positive evidence, such as English do-support, appears to indicate almost immediately that sentences like (7a) and (8a) (repeated below) are not possible in English.[12]

(7) a. *John likes not Mary.
(8) a. *Likes she John?

An important issue that such studies of the effectiveness of L2 input raise is why certain types of positive L2 input should be able to trigger parameter resetting whereas others do not, or why certain parameters are triggerable whereas others are not. In some areas of L2 acquisition, there appears to be a lack of convergence on the L2 grammar, whereas in other areas L2 properties are successfully acquired. White (1989a, 1989b) argued that successful resetting or lack thereof would depend on the subset–superset relationships holding in the L1 and the L2. If the L1 yields a superset of sentences permitted in the L2, successful resetting would be impossible on the basis of positive evidence alone, whereas if the L2 is a superset of the L1, successful resetting should be possible. However, the results

[12]Pollock's linking of adverb placement to verb raising has been questioned (Iatridou, 1990). White's results are consistent with Iatridou's reanalysis of the parameter that leaves question formation and negative placement as part of the cluster of properties accounted for by verb raising but removes adverb placement.

described in this section suggest that success in parameter resetting is not predictable in terms of subset–superset relationships between the L1 and the L2.

IV. SOME CURRENT ISSUES

Previous research (especially on parameters) has tended to concentrate on learners still in the process of acquisition. In the ongoing debate over the availability of principles of UG in L2 acquisition, there has recently been a shift in focus from investigating properties of the developing IL grammar to the issue of ultimate attainment. If one considers people who can be said to have finished their L2 acquisition, is their L2 grammar constrained by UG or not? Is their grammar nativelike with respect to UG effects (note, as above, that it might be constrained by UG but different from the native grammar)? Does the ultimate attainment of late learners differ from that of early learners, due to maturational effects, for example?

A. Maturational Effects

Although many early studies looked at the question of whether adult learners have access to UG, few dealt specifically with maturational effects, or the question of whether there is a sudden decrease in access to UG at puberty or a gradual decline, or no decline at all. (Possible maturational effects in L2 acquisition are also discussed in this volume, chapters 5 by Schachter and 15 by Obler and Hannigan.) One pioneering study that addresses these issues is Johnson and Newport (1991).

Johnson and Newport (1991) are concerned with adult L2 acquisition, particularly with the achievements of proficient L2 users. At issue is whether principles of UG are subject to critical-period effects. Like earlier studies (Bley-Vroman, Felix, & Ioup, 1988; Schachter, 1989), they look at Subjacency.

In their first experiment, Johnson and Newport (1991) tested Chinese speakers who learned English as adults; that is, all subjects had moved to the United States after the age of 17. (They had, however, had high school instruction in English in their countries of origin.) Subjects had resided in the United States for a minimum of 5 yr and used English constantly in their day-to-day work. Subjects were deemed to have completed their acquisition of English, so that any properties of their grammars revealed in the study would reflect properties of ultimate attainment. (In other words, no further changes are presumed to be possible.)

Subjects heard sentences presented aurally (on tape), which were to be judged for grammaticality. These sentences were relevant to Subjacency and included three different kinds of Subjacency violations, together with corresponding grammatical

declaratives and grammatical wh-questions. This combination gets around problems in other studies: the grammatical declaratives control for knowledge of the structures in question; the grammatical wh-questions control for knowledge of wh-movement (Schachter, 1989, has only the former; Bley-Vroman et al., 1988, have only the latter). Choice of sentences constitutes a considerable improvement over other tests investigating Subjacency. However, there are some problems: The fact that the task is aural means that problems with processing at the phonetic or phonological levels might cause difficulties unrelated to the syntax; in addition, there were a lot of sentences (180) to be judged.[13]

The results show that the Chinese subjects perform significantly below native controls on Subjacency violations, incorrectly accepting many of them. Nevertheless, they perform above chance.[14] One comparison that Johnson and Newport do not make is to compare mean number correct (i.e., accuracy) on grammatical wh-questions versus Subjacency violations. If there were no statistically significant difference between these two sentence types, it would suggest that the problem might be with wh-movement in general. In other words, these L2 speakers might have grammars without long-distance movement, using pro as their empty category (Martohardjono & Gair, 1993; White, 1992c).[15] If so, these learners have in fact got IL grammars constrained by UG but they are certainly not like English.

A second study reported in the same article looks at the maturational issue in more detail, focusing on whether there is a gradual or sudden deterioration in access to UG. Subjects were adult Chinese speakers who learned English at various ages (4–7 yr, 8–13 yr, and 14–16 yr). The same tests were taken as before and results are compared to the subjects in the previous study. Results show a continuous decline in performance on Subjacency and a correlation between performance and age of arrival in the United States. The 4–7-year-olds are not significantly different from the natives, whereas the other groups are. All three age groups perform significantly better than the adult learners. Johnson and Newport conclude that access to UG is subject to maturational effects. Although adults still show evidence of observing constraints of UG at above chance levels, their performance is significantly below that of younger learners.

[13]However, there were different versions of the test to control for potential fatigue effects; there proved to be no significant differences for version, suggesting that length of the task was not a factor.

[14]Above chance performance is due to one sentence type, namely relative clauses. It turns out that all sentences involving extractions from relative clauses violate the Empty Category Principle (ECP) as well as Subjacency (because the extraction is from a subject relative), whereas other ungrammatical sentences only violate Subjacency. This is, presumably, unintentional, because it is not discussed by Johnson and Newport. These results suggest that the ECP may still be available to adults even if Subjacency is not.

[15]Johnson and Newport present a related analysis where they look at rejections of wh-questions, both grammatical and ungrammatical, in case there is a response bias to rejection. They report that subjects show a significant difference between rejecting ungrammatical violations and rejecting grammatical wh-questions.

B. Near Native-Speaker Competence

Perhaps one of the reasons why maturational effects were found has to do with the selection of subjects in the above study. Subjects were chosen who had lived a long time in the L2 environment and who made considerable use of the L2. No attempt was made to assess their actual level of attainment. Another approach to the ultimate attainment issue has been to look at individuals who are deemed to have achieved the status of near or virtual NSs, meaning, informally, that they can (almost) pass as NSs of a language that is not in fact their mother tongue. Although such an approach seems to suggest that L2 speakers should be compared to NSs rather than being considered in their own right, it is important because one needs to know whether competent bilinguals can ever attain the kind of knowledge that is usually assumed to stem from UG. If their competence proves to be native-like, this suggests that UG must still be available and that the "failures" of many L2 learners must be attributed to other sources. If their competence does not correspond to that of NSs, one then has to pursue the question of whether it is "unnatural" (in a technical sense) (Position 2) or natural but different from that of NSs (Position 3).

A number of researchers have recently investigated the attainment of near-NSs. Results are conflicting: some report that fluent L2 speakers do not achieve native-like competence in certain areas, even if they pass as near-NSs (Coppieters, 1987; Sorace, 1993, chap. 12, this volume), whereas others report few differences between near natives and natives (Birdsong, 1992; White & Genesee, in press). Most of these studies adopt as a measure of achievement whether or not subjects pass a near-NS criterion (although how this is determined is often ad hoc and vague).

Coppieters

Coppieters (1987) investigates whether there are competence differences between NSs and near-NSs of French. Subjects (of various L1s) were identified as near native in their oral proficiency on the basis of reports from their friends and colleagues, followed by in-depth interviewing by the experimenter. All subjects had acquired French as adults, in the sense that their first communicative use of French was after the age of 18 (although many of them had studied French in high school). They had lived an average of 17 yr in France. Subjects unfortunately included a high proportion of linguists and professors of language or literature. There was also a control group of NSs of French, again including linguists and professors specializing in various modern languages. This concentration of linguists and language professors is most unfortunate as such people are trained to look at language in particular ways and one cannot be sure that unconscious linguistic competence is really being tapped.

A questionnaire was constructed, covering various aspects of French, including structures that Coppieters assumes not to stem from UG, as well as things that do.

Subjects and controls were interviewed and their intuitions and interpretations were elicited and discussed. About 40% of the test items dealt with a variety of structures where contrasting forms are found. Subjects were given sentences where they had to choose one of the contrasting items; if they chose both, they were asked whether there were meaning differences between the two, and they were asked to try and articulate the difference. About 60% of the sentences did not involve contrasts; rather, straightforward judgments of grammaticity on a number of different structures were elicited.

Results from this study reveal quantitative and qualitative differences between NSs and near-NSs. Each sentence in the questionnaire was assigned an evaluation index, corresponding to the majority of NS responses to it, to arrive at a prototypical norm for each sentence. NSs showed considerable agreement in their responses and varied far less from this norm than the near-NSs did. No near-NSs performed like NSs. Qualitatively, where differences in form reflected differences in meaning, the near-NSs had different intuitions about the meaning contrasts from the NSs. (However, these intuitions involve conscious reflecting on the sentences, which is not necessarily an appropriate way to tap unconscious linguistic competence.) Divergence was not uniform across the various structures tested: NSs and near NSs diverged least on formal (UG-like) properties and diverged most on semantic aspects.

Although methodologically and conceptually flawed (see Birdsong, 1992, for extensive criticism), this study is important in that it asked a significant question, which had been surprisingly neglected up till that point. Because of the flaws, however, it is not clear that the results really indicate competence differences between NSs and near-NSs. Birdsong suggests that the issue is still open and seeks an answer by trying to remedy some of the problems.

Birdsong

Birdsong (1992) discusses many problems with Coppieters's study, including problems with the tasks and with subject selection. Subjects came from several different L1s, and there are too few subjects from each L1 to make generalizations. The number of sentences testing each structure in Coppieters's study is very uneven, ranging from 2 on one structure to 28 on another; this means that one has to interpret Coppieter's results on deviance from the norm with considerable caution. Birdsong also points out that the ± UG distinction is somewhat arbitrary and that results on this distinction may be an artifact of the two different procedures used in testing: all the non-UG structures were tested with the task involving contrasts; all the UG structures were tested with the outright judgment task.

Birdsong deals with the methodological problems by producing more adequate test instruments and more uniform criteria for subject selection. With these changes, he attempts to replicate Coppieters's results. In contrast to Coppieters, he finds few competence differences between NSs and near-NSs of French. Birdsong's subjects are fluent speakers of French, all with English as their L1. None

of the subjects or controls are linguists or language teachers, and their backgrounds are more uniform that those of Coppieter's subjects. Subjects were chosen who had resided for at least three years in France (arriving there as adults) and who spoke French fluently, in the estimation of the experimenter.

One of the tasks was a judgment task that included a number of linguistic structures, some of which were those tested by Coppieters. Sentences were drawn from Coppieters and from the linguistic literature. In contrast to Coppieters, Birdsong finds a much lower incidence of divergence between NSs and near-NSs, even for structures where Coppieters did find such a difference. Furthermore, several of the near-NSs achieve scores comparable to the NSs. There is no clear ± UG pattern in the results.

Instead of interviewing subjects about certain sentences, Birdsong had his subjects do think-aloud protocols. These reveal no large-scale or systematic differences between the two groups. In addition, two sentence-interpretation tasks show a high degree of conformity between NSs and near-NSs. In general, Birdsong's results are very different from those of Coppieters and suggest that near-NSs are similar to, rather than different from, NSs.

White and Genesee

Another study that reports few differences between NSs and near-NSs is White and Genesee (in press). White and Genesee aim to develop criteria to classify subjects as near-NS and to compare near-NSs with NNSs with respect to the operation of principles of UG. Subjects were bilingual speakers with English as the L2; the majority had French as their mother tongue. There was also a control group of monolingual English speakers. In order to assess whether subjects were near-NS, they were interviewed and portions of each interview were submitted to two judges who rated them on general fluency, phonology, syntax, morphology, and lexicon. On the basis of these ratings, half of the subjects were classified as near-NS and half were classed as NNSs.

Subjects took a grammaticality judgment task (involving a judgment and a reaction time measure) and a written production task. Both tasks tapped subjects' knowledge of grammatical wh-question formation in English, as well as principles of UG that constrain wh-movement (ECP, Subjacency). Sentences were extensively piloted on NSs of English to ensure that judgments of grammaticality and ungrammaticality were consistent and in accordance with the predictions of UG. Surprisingly few studies on UG in L2 do this. Birdsong and Coppieters, for example, include sentences where NSs do not give consistent or clear-cut judgments, so that one wonders about the generalizability of the results beyond the particular sentences tested (see Clark, 1973).[16]

[16]Birdsong's sentences are drawn directly from the linguistic literature, which is somewhat problematic as linguists do not devise their sentences with psycholinguistic experiments in mind. Birdsong uses these sentences to avoid experimenter bias but runs into the problem of linguist bias instead.

White and Genesee find that the near-NSs' performance is not significantly different from the monolingual controls: they reject violations of UG in the judgment task, take no longer to make judgments than the controls, and do not produce violations in the production tasks. The NNS group differs in some respects from both near-NSs and monolinguals. Because the age at which these bilinguals started learning English varies from under 3 to over 16, age effects are also investigated and no significant effects of age of first exposure to English are found.

In conclusion, these results suggest that if consistent criteria are developed for establishing whether a bilingual is a near-NS, near-NSs can be totally nativelike in the UG domain, even if they are late learners of the L2. However, it should be noted that although this study shows that L2 learners have nativelike competence in the UG domain, one cannot determine whether the access to UG was direct or indirect. Because the L1 of the majority of the subjects was French, and because French and English are similar with respect to the operation of many of the principles investigated in this study, access might have been via the L1. In a sense, this study attempts to establish minimally whether any near NS group achieves nativelike success, regardless of whether this is due to direct access or indirect (via L1). A next step should be to look at near-NSs with very different L1s.

Sorace

A study that finds competence differences between NSs and near-NSs is Sorace (1993; chap. 12, this volume). Sorace proposes that near-NSs often have grammars that diverge from native grammars; although their performance may seem nativelike, their competence is not. Sorace distinguishes between near-native grammars that are incomplete (lacking properties of the native grammar) or divergent (containing properties that are different from the native grammar). She looks at the ultimate attainment of French and English speakers who are deemed to be near-NSs of Italian and argues that both incompleteness and divergence are to be found, and that the mother tongue plays a role in determining which kind of near-nativeness shows up.

The phenomenon studied is unaccusativity. Unaccusative verbs are verbs that, underlyingly, have one internal argument (a theme) and no external argument (see Sorace, chap. 12, this volume, for details). Unaccusatives in Italian have a number of well-known syntactic reflexes, including selection of the auxiliary *essere* 'to be' rather than *habere* 'to have' (Burzio, 1986). These reflexes are true of all unaccusative verbs in that language. French unaccusatives are much less consistent in their behavior; for example, some unaccusative verbs select *être* 'to be', whereas others take *avoir* 'to have'. In English, there are few obvious syntactic reflexes of unaccusativity.

Sorace investigates a number of properties of unaccusativity in the grammars of English-speaking and French-speaking near-NSs of Italian, who had started learning Italian after the age of 15. The criterion for selection of subjects was that

they perform with nativelike fluency and accuracy (except phonology), as established in an interview with the experimenter. Acceptability judgments were elicited on sentences exemplifying properties of Italian unaccusatives. Results suggest that both groups' intuitions regarding semantic factors underlying auxiliary choice are similar to those of NSs. However, they differ from NSs on some or all of the syntactic reflexes of unaccusativity. The French-speaking learners of Italian have determinate (but sometimes nonnative) intuitions on auxiliary choice in certain constructions; that is, their acceptances or rejections may be inappropriate by native standards but they are quite consistent in their judgments. The English-speaking subjects have indeterminate intuitions; that is, their judgments suggest they are unsure about auxiliary selection in various syntactic contexts. Sorace attributes these differences to deeper properties of unaccusativity in the two L1s rather than to surface transfer. She argues that the French speakers have a grammar that is different from the Italians but not lacking anything, whereas the English-speakers actually lack something in their IL grammars.[17]

Sorace does not discuss whether the IL grammars of her learners are "possible" in the UG sense. Divergent or incomplete grammars are clearly different but may still be natural or possible, (i.e., still fall within the range of grammars permitted by UG—in other words, Position 3). In the case of Sorace's English-speaking subjects, the status of the grammar may not be possible to determine, if their grammars really are indeterminate (and this raises the question of whether UG tolerates such systems). In the case of the French speakers, whose Italian IL grammar diverges from the native Italian grammar, it appears that they do have a possible grammar. They have problems when auxiliary choice is optional. When *essere* 'to be' is obligatory, they have no problem recognizing this fact, but when it is optional, they often reject it, obligatorily choosing *habere* 'to have'. Because the latter is in fact correct (although only one of the possibilities admitted by native Italians), their divergent grammar does not appear to violate UG.

In conclusion, the results from various studies on near-native competence suggest that there may be certain areas where divergence is found and others where ultimate attainment is nativelike. This is an area that clearly needs further exploration: in what domains is divergence to be expected and why? Are divergent grammars UG-constrained or not? Is the divergence due to L1 or not?

C. Exploring Interlanguage Competence

We have already seen that an important question in the UG debate is the nature of IL competence, particularly the question of whether language learners have the

[17]It is not clear that this is a real distinction. A grammar lacking some property is different from a grammar with the property in question. Would one, for example, describe a grammar without syntactic wh-movement as incomplete?

same mental representation of the L2 as NSs. We have also seen that an important issue is whether their representation is UG-constrained when it is different from that of native NSs. With developments in linguistic theory, one can pursue this question at much greater depth and with a much greater degree of sophistication than formerly. Although earlier studies of UG in L2 acquisition tended to investigate whether a particular principle or parameter setting constrains the IL grammar, more recently researchers have started to explore other aspects of the IL grammar, in the framework of current GB theory. Such work focuses very much on the nature of IL competence in its own right, thus not falling into the "comparative fallacy" (Bley-Vroman, 1983).

One example is provided by the issue of functional projections and their status in the IL grammar. In current linguistic theory, a distinction is made between lexical and functional categories. Functional categories are categories like inflection (I), which may be split into T and Agr (Pollock, 1989), complementizer (C) and determiner (D). Like lexical categories (N, V, P, A), they project to the phrasal level: complementizer phrase (CP), inflection phrase (IP), determiner phrase (DP). In L1 acquisition research, there is an active debate on the status of functional categories and their projections in the early grammar. Guilfoyle and Noonan (1992) and Radford (1990) have claimed that functional projections are totally absent in the earliest stages. This explains certain properties of "early" child English, such as absence of determiners, modals, inflection, case-marking, and wh-movement. Others argue that functional categories are available in the early grammar but not always realized (e.g., Pierce, 1992). Evidence for their availability comes particularly from languages like German and French, where verb-movement possibilities depend on a ± finite distinction (a property of I). Young children observe verb placement differences depending on finiteness (though not necessarily to the extent that older children and adults do); this cannot be explained in the absence of the relevant functional projections for the verb to move to (Pierce, 1992; Whitman, Lee, & Lust, 1991).

Parallel to the L1 acquisition research on this issue has been work that explores the status of functional categories in L2 acquisition, with a similar debate about whether they are present in the earliest stages. Kaplan (1992) and Vainikka and Young-Scholten (1994) argue that functional categories are absent in the earliest adult L2 grammar, whereas Grondin and White (1995), Lakshmanan (1993), and Lakshmanan and Selinker (1994) show that they are present in early child L2 acquisition, and Schwartz and Sprouse (1994) show that they are present in early adult L2. In each case, the arguments come from detailed analysis of the L2 data, including evidence for morphological markings and evidence of syntactic movement through functional projections.

Just as the functional projection issue has been of particular interest for accounts of verb movement in L1 acquisition (the verb must move from V to I and

C), so investigating IL grammars in terms of the presence or absence of functional categories allows a much more detailed look at L2 word-order acquisition and verb movement, topics of considerable debate in the L2 literature. For example, as mentioned in section III.C, Clahsen and Muysken (1986) argue that adult L2 learners have an "unnatural" grammar, allowing nonfinite elements to move rightwards to the end of the sentence, whereas L1 learners have a natural grammar, where finite elements move leftwards. As pointed out by Schwartz and Tomaselli (1990), their analysis suffers from the lack of an I projection. Du Plessis et al. (1987) and Schwartz and Tomaselli (1990) show that the L2 data can be explained once one assumes that L2 learners (like NSs) project an IP as well as a VP, and that the position of inflected elements in the IL grammar is easily explained as movement from V to I (and in some cases C). Eubank (1992) pushes the functional category analysis further, accounting for L2 stages of German in terms of Agr and T. Similarly, White (1992a) shows that the treatment of verb placement by French learners of English is explicable if one assumes that they project both TP and AgrP.

Some of the above work explicitly aims to use L2 data to test issues in L1 acquisition theory. For example, Kaplan (1992) and Grondin (1992) both point out that status of functional projections in the L2 grammar could be used to test the claim that functional categories mature in L1 acquisition. As mentioned above, a number of researchers have argued that child L1 acquisition is characterized by an initial phase during which functional categories and their projections are absent and they have claimed that they emerge according to a maturational schedule (Radford, 1990). If functional categories show the same pattern of emergence in L1 and L2 acquisition, it is unlikely that maturation can explain any observed acquisition sequences, because L2 learners will already have gone through the relevant stages of maturation. Kaplan (1992) reports that C is late to emerge in adult L2 acquisition, as it is in child L1 acquisition, thus calling the maturational claim into question. However, both Grondin and White (1995) and Lakshmanan and Selinker (1994) report no stages of emergence for functional categories in child L2 acquisition. Their results, therefore, do not disconfirm (or confirm) the maturational claims for L1. (Functional categories are also discussed in this volume in connection with L2 acquisition in chapter 4 by Flynn and with acquisition of English by the deaf in chapter 14 by Berent.)

This kind of research illustrates how L2 data may be able to inform theories in other domains. Gass (1992) and Rutherford (1993) argue that the field of L2 acquisition is now sufficiently developed that L2 data should be used as data for linguistic theory and L1 acquisition theory. The relationship between linguistic theory and linguistic data is usually two-way: the theory makes predictions and provides insights into data, and data can be used to support or question the theory. The relationship between linguistic theory and data from other domains (such as L1 and L2 acquisition), however, has usually been unidirectional. Linguistic

theory is often used to make predictions about L1 and L2 acquisition (as we have seen), and to account for observed phenomena, but L1 and L2 acquisition data do not have a clear status vis à vis linguistic theory. Gass argues that the time has come when L2 data should be used beyond L2 acquisition theory; this is another area in which the UG perspective on L2 acquisition might develop.[18]

V. NEW DIRECTIONS

So far, we have seen that work on UG in L2 acquisition has focused on whether principles and parameters are available in L2 acquisition, both during the course of learning and in ultimate attainment. It has been suggested that L2 learners often develop IL grammars that are different from the grammars of NSs but which are nevertheless constrained by UG, and that this is due, in part, to properties of the L2 input interacting with UG and the L1 grammar. Many questions remain to be answered, including the question of why some learners "fossilize" with these divergent IL grammars, whereas others successfully attain a nativelike grammar; why some parameters are successfully reset whereas others are not; why positive L2 input is only sometimes successful as a trigger for grammar change. There are also areas of L2 acquisition that have been surprisingly neglected in the UG framework. Some of these are discussed below.

A. Child–Adult Differences

The question of whether child L2 learners have access to UG received little specific attention until recently. As Johnson and Newport (1991) pointed out, it is all too easy to confound the availability of UG in L2 acquisition with the age question. Much research has compared adult L2 learners with child L1 learners and concluded that they are different, hence that L2 acquisition is different from L1, that UG is not available. Others assume without empirical investigation that child L2 learners will have access to UG. In order to determine the status of UG in child L2 acquisition, more comparisons of child and adult L2 learners are required, as well as child L1 and child L2.

Two recent studies compare child and adult learners who are still in the process of L2 acquisition, making use of data already available in the field. Hilles (1991) compares Spanish-speaking children, teenagers, and adults acquiring ESL, with respect to their performance on the Morphological Uniformity Principle (MUP),

[18] However, there is always the problem of whether L2 learner languages are indeed natural languages, constrained by UG. If they are not, L2 data cannot be expected to shed much light on linguistic theory or L1 acquisition.

a development that has replaced the Null Subject Parameter (Jaeggli & Safir, 1989). According to the MUP, only languages with uniform inflectional paradigms permit null subjects, where uniformity means that all forms in a morphological paradigm are morphologically complex or none are.[19] Thus, Spanish, with every form inflected, is uniform, as is Chinese, with no inflected verbs. English, on the other hand, is not uniform, because some forms are inflected and others not. The MUP has two options [+ uniform] and [− uniform]. Hilles (1991) looks at the question of whether learners of a [+ uniform] L1, such as Spanish, learning a [− uniform] L2, such as English, will show a loss of null subjects in the L2 as they realize that the L2 is not uniform. Looking at transcripts of production data from six Spanish-speaking learners of English for evidence of a correlation between the emergence of overt, nonuniform inflection and use of pronominal (as opposed to null) subjects, she argues that these properties are highly correlated in the grammars of the two child learners and one adolescent, suggesting access to the MUP, whereas there is no such correlation in the grammars of the other adolescent and the two adults, suggesting lack of access to UG. Thus, child and adult L2 acquisition differ, on this analysis, with UG only available in the former case. However, there is a problem with this reliance on correlations, or lack thereof; the MUP predicts a correlation especially in the early stages: that is, as nonuniform inflection begins to emerge, so pronominal subjects should increase and null subjects decrease. However, in the case of one of the adolescents and one of the adults, nonuniform inflection was already being used to a high degree at the beginning of the investigation. In other words, inflection is well established in the grammar rather than just emerging, so the lack of a correlation is not surprising and says nothing about the UG accessibility issue either way. The only way to use the high incidence of inflection to argue against MUP (hence UG) would be if there is a high incidence of nonuniform inflection and a continuing high incidence of null subjects. This is not the case with any of the subjects studied by Hilles.[20] (For additional discussion of null subject phenomena in L2 acquisition, see chapter 10 by Gass.)

Schwartz (1992) compares child and adult acquisition for a somewhat different reason: she points out that a comparison of child and adult L2 developmental sequences is a useful way of testing the fundamental difference hypothesis (Position 2). If child L2 learners still have access to UG (as commonly assumed) and if child and adult learners with the same L1 learning the same L2 show similar acquisition sequences, then this is problematic for theories that assume that child

[19] Uniformity is a necessary, but not sufficient, condition for null subjects.

[20] A different perspective on the issue of child access to the MUP is taken by Lakshmanan (1989), who assumes that UG is available in child L2 acquisition. She argues that the predictions of the MUP are not borne out in child L2 data and that such data can be used to cast doubt on linguistic theory, in this case the MUP, thus providing another example of how L2 data might be used beyond the L2 domain.

and adult acquisition are dissimilar. Similar acquisition sequences would thus support the claim that UG is available to adult learners. She shows that child and adult L2 developmental sequences for German word-order acquisition by Romance speakers are very similar and can be explained in terms of IL grammars that are constrained by UG.

Both the above studies make use of existing data that were not gathered to test issues relating to UG in L2 acquisition. In order to investigate the nature of child IL grammars more closely, further studies are required using tests that are designed to test specific predictions of the UG approach, perhaps modeled on some of the current research on principles and parameters in L1 acquisition.

B. Phonology

One might get the impression from reading the literature devoted to UG in L2 acquisition that UG is only concerned with syntactic principles and parameters. This, of course, is not the case. Principles and parameters are proposed for other areas of grammar as well, including phonology; it is, presumably, accidental that these have been somewhat neglected in L2 acquisition research. L2 phonology has, of course, been studied in considerable detail but phonological principles and parameters of UG and their implications for L2 acquisition have only recently received attention. This means that a whole area where the UG availability issue could be extensively tested has in fact been underused.

Archibald (1992, 1993) and Pater (1993) have investigated the effects a number of metrical parameters associated with stress assignment (Dresher & Kaye, 1990), looking at the acquisition of English word stress by NSs of languages whose settings for some of the metrical parameters differ from English. These researchers explore the effects of L1 parameter settings, and discuss what aspects of the L2 input might act as cues for resetting metrical parameters. Results suggest that some learners may arrive at parameter settings that are present in neither the L1 nor the L2, but that stress assignment in the IL grammar is always UG-constrained (i.e., neither random nor unnatural). That is, in phonology as in syntax, learners do not arrive at "impossible" systems.

Broselow and Finer (1991) investigate a phonological parameter that captures the fact that languages that allow consonant clusters to serve as syllable onsets vary as to what kinds of consonants may co-occur in the cluster. Co-occurrence possibilities are determined by a sonority hierarchy, but languages differ as to how close on the hierarchy adjacent segments must be. These differences are captured by a multivalued Minimal Sonority Distance parameter. Korean and Japanese learners of English are found to adopt a value of this parameter that is more marked than that required in their L1s but less marked than the L2.

This work is particularly interesting because it tries to look across UG domains,

in order to determine the extent to which phonological principles work like syntactic ones in L2 acquisition. Broselow and Finer's results from syntax have already been discussed (section III.C); L2 learners with an L1 like Korean or Japanese appear to adopt an intermediate setting of the GCP that is neither the Japanese nor the English setting. This comparison of L2 syntactic and phonological parameters, then, suggests that different modules of UG nevertheless affect the L2 learner similarly and that the finding of same mechanisms (UG) but different competence is not confined to the syntactic domain. (Discussions of L2 speech and phonology are also found in this volume, chapters 6 by Eckman, 9 by Leather and James, and 10 by Gass.)

VI. CONCLUSIONS

Work on UG in L2 acquisition over the last 10 years or so has focused on whether principles and parameters are available in L2 acquisition, both during the course of learning and in ultimate attainment. An important issue has been whether an L2 learner's representation of language is UG-constrained when it is different from that of NSs. In this chapter, it has been suggested that L2 learners often develop IL grammars that are different from the grammars of NSs but that are nevertheless constrained by UG, and that this is due, in part, to properties of the L2 input interacting with UG and the L1 grammar. Many questions remain to be answered, including the question of why some learners "fossilize" with these divergent IL grammars, whereas others successfully attain a nativelike grammar; why some parameters are successfully reset, whereas others are not, why positive L2 input is only sometimes successful as a trigger for grammar change.

In spite of the fact that we do not yet know the answers to these questions, I should like to suggest that divergent IL grammars should not be seen as a problem for L2 acquisition theory. We should not think of L2 learners whose parameter settings or IL grammars happen not to coincide with those of the NS of the L2 as unsuccessful acquirers of their L2; instead, we should think of them as NSs of ILs. In other words, we need to explore in much more detail the nature of the linguistic systems that L2 learners arrive at, using linguistic theory to help us understand the characteristics of learner grammars, as is already happening, for example, in the recent analyses of the role and nature of functional categories in L2 acquisition (see section IV.C). Indeed, perhaps the time has come to stop asking the broad question: is UG available to L2 learners or not? This question has stimulated a great deal of fruitful research over the last decade, but it is now the turn of a somewhat more detailed focus on the precise nature of the linguistic competence

of language learners, a focus that will continue to draw on current linguistic theory.

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