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Major professor

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By

India Catherine Plough

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ABSTRACT

A ROLE FOR INDIRECT NEGATIVE EVIDENCE
IN SECOND LANGUAGE ACQUISITION

By

India Catherine Plough

The potential significance of indirect negative evidence (INE) has been all but ignored in Second Language Acquisition (SLA) research. In general terms, this dissertation addresses the Learnability Problem of language acquisition and the role that INE may play as a partial solution to that Problem. Specifically, the purpose of this dissertation is to investigate the relationship between the use of inductive inferencing and the acquisition of the ungrammaticality of Subject-Adverb-Verb-Object (SAVO) word order in French by native speakers of English. I argue that the use of INE is analogous to the use of inductive inferencing, and therefore, the use of INE can be investigated via an investigation of the use of inductive inferencing.

The database for the study consists of 45 native speakers of English enrolled in first year French at Michigan State University. All volunteers took three pretests, two of which tested their knowledge of adverb placement in French and one of which tested their inductive reasoning ability. Subjects were divided into two groups based on class section. For a two week period in Group 1 the teachers' regular lessons were altered so

that, wherever possible, exercises contained adverbs. In Group 2, in addition to adverb exercises, students received verbal inductive inferencing exercises in both French and English. Immediately following the two week instructional period, all subjects were posttested on their knowledge of adverb placement in French. Three weeks after the first posttest, students were posttested again.

Manifested in the results of this study is the now well-known fact of the necessary interrelatedness of the variables involved in SLA. Just as one variable cannot be examined in isolation from others, so too, the cognitive processes which both affect and are affected by these variables must be considered; the use of INE or inductive inferencing is one such cognitive process. While the results of the current study do not conclusively show that the use of INE is operative in the acquisition of the ungrammaticality of SAVO word order in French by native speakers of English, they do suggest that the use of inductive inferencing plays a role in SLA.

This dissertation is dedicated to the memory of

Lynn Ann Wehner
1957-1991

whose goodness will always be a source of strength.

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A sports announcer/philosopher once said upon receiving an award that he was reminded of a time when he was walking down a country road and came across a turtle perched on top of a fence post. He could not figure out exactly how she had gotten there. But one thing he did know for sure---she did not get there by herself.

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INTRODUCTION

In *Lectures on government and binding*, Chomsky states:

> Returning to our idealized - but not unrealistic - theory of language acquisition, we assume that the child approaches the task equipped with UG and an associated theory of markedness that serves two functions: it imposes a preference structure on the parameters of UG, and it permits the extension of core grammar to a marked periphery. Experience is necessary to fix the values of parameters of core grammar. In the absence of evidence to the contrary, unmarked options are selected. Evidence to the contrary or evidence to fix parameters may in principle be of three types: (1) positive evidence (SVO order, fixing a parameter of core grammar; irregular verbs, adding a marked periphery); (2) direct negative evidence (corrections by the speech community); (3) *indirect negative evidence* [italics added] - a not unreasonable acquisition system can be devised with the operative principle that if certain structures or rules fail to be exemplified in relatively simple expressions, where they would be expected to be found, then a (possibly marked) option is selected excluding them in the grammar, so that a kind of "negative evidence" can be available even without corrections, adverse reactions, etc. There is good reason to believe that direct negative evidence is not necessary for language acquisition, but indirect negative evidence may be relevant. (1981, pp. 8-9)

The potential significance of indirect negative evidence (INE) has been all but ignored in Second Language Acquisition (SLA) research and has just recently been taken into consideration in first language acquisition (L1) studies. In general terms, this dissertation addresses the Learnability Problem of Language Acquisition and the role that INE may play as a partial solution to that Problem. Specifically, the purpose of this dissertation is to investigate the relationship between the use of inductive inferencing and the acquisition of the ungrammaticality of Subject-Adverb-Verb-Object word order in French by native speakers of English. In order to investigate the use of INE, I argue

that its use is analogous to the use of inductive inferencing, and that therefore the use of INE can be investigated via an investigation of the use of inductive inferencing. The organization of the argument is as follows:

In Chapter 1, I begin with a brief overview of the Learnability Problem in language acquisition in order to place the role of evidence, both positive and negative, in its theoretical perspective. A major assumption in this research, which is supported by the evidence gathered from previous studies, is that the Learnability Problem of L1 acquisition, with respect to incomplete evidence available to the learner, equally applies to SLA. The Learnability Problem is often used as support for Universal Grammar (if the output exceeds the input, then there must be a contribution from some internal or innate 'mechanism'). However, the goal of the present research is not to argue UG into or out of existence.

The Learnability Problem is best encapsulated in the question asked by Chomsky in 1987 (cited in Cook, 1988, p. 55): "How do we come to have such rich and specific knowledge, or such intricate systems of belief and understanding, when the evidence available to us is so meager?" There are three problems with this evidence, two of which deal with the positive evidence available to the learner. First, the language to which learners are exposed and which informs them of what is possible in the grammar they are creating underdetermines their final competence; that is, the input might be expected to mislead learners into making false generalizations. The second problem with the positive evidence available to learners is that it is often degenerate. For example, slips-of-the-tongue, false starts, and informal dialogue are all common input for children. Yet, even with this degenerate and incomplete positive evidence, learners are able to

'work through' the complexities of the grammar and know not only which sentences are possible but also which sentences are impossible in their language.

I examine in relatively greater detail the last aspect of the Learnability Problem, namely the role of negative evidence, or the overt correction which informs the learner of what is not possible in the grammar. I provide a brief summary of some of the major theoretical linguistic and psychology of learning studies questioning the role of, the existence of and what constitutes negative evidence. The impact of this work on SLA research is shown in the review of the seminal L2 studies dealing with negative evidence. If it is the case that learners form false generalizations, and then they are overtly corrected, the Learnability Problem would be resolved. However, the research in both first and second language acquisition indicates that when learners make errors they do not consistently receive overt correction or if they do receive correction, it appears that in many instances they ignore it.

I discuss the literature to date (Lasnik, 1989; Valian, 1990; Saleemi, 1990, 1992; Archibald, 1993) which addresses the issue of INE. It should be noted that these authors are arguing for the viability of INE from a theoretical standpoint; as previously mentioned, no empirical studies in either L1 or L2 have been conducted to date. This is in part due to the elusiveness and "vagueness" (White, 1989) of the concept and the seeming difficulty of developing a research design to test for INE. All authors are working within a UG framework, and while Lasnik and Saleemi address in some detail what the structural contents of UG must be, Valian focuses on the psychological reality of an acquisitional model. Theoretical support within SLA (Gass, 1988) for a role of INE is discussed before turning to the first proposal within SLA (Archibald, 1993) which

explicitly states that the evidence available to the learner may include INE. Archibald concentrates on the problem that "INE is not specific as to the location of the error or to what action to take to correct things" (p. 5), and thus turns to appropriate cues, or triggers, combined with both inductive and deductive learning as a solution.

The proposal that INE plays a role in language acquisition crucially depends on the assumption that a domain of expectation exists. The absence of a structure must be noticed. Without a domain of expectation, what is not present is infinite. Additionally, a domain of expectation would partially provide the learner with a means of determining if nonoccurrence can be equated with ungrammaticality; that is, just because a specific structure has not been heard may not mean that that structure is impossible in the grammar.

The question then becomes what is it which provides this domain of expectation? For L1 acquisition, Universal Grammar has been proposed. For SLA, the question expands to the similarities and differences of L1 and L2 acquisition; and further, can these be explained in terms of universal principles of grammar? Among those working within a UG framework, the debate continues over whether principles of UG are directly accessible (Mazurkewich, 1984; Schwartz, 1993), partially accessible [(White, 1989) when and to what degree (Sharwood Smith, 1990)] or not accessible (Clahsen & Muysken, 1989; Bley-Vroman, 1989; Schachter, 1988). With respect to the issue of L1 versus L2 acquisition, Eckman (1992) has argued that the most parsimonious explanation would be to posit a single mechanism, to treat the differences as superficial, and thus to unify the two under a single theory. However, once the focus narrows to the role of INE in SLA, and specifically to the assumed domain of expectation, the prudent supposition

would be that this domain is provided by the L1. There is no justification initially to invoke UG and thus assume the larger domain. The present research begins from this position.

In Chapter 2, after cursory definitions of inductive and deductive inferencing from the fields of philosophy and psycholinguistics, I provided examples of the use of induction in the processing of meaning in a first language. I discuss Carton's (1966) *Method of Inferencing in Foreign Language Learning* and propose that Carton's inferencing and Chomsky's 'operative principle' are analogous processes. In order to investigate this process, I argue that the use of INE is analogous to the use of inductive inferencing. I propose that the second language learner can reach the correct conclusion through the process of inductive inferencing.

A role of inferencing in SLA is not new to the research agenda. In 1966, Carton defined inferencing

> . . . as requiring the scanning of what is already known by the learner in the establishment of new concepts. The process inherently requires linking of new material with what is already known. . . . Inferencing can add salience to novel stimulus configurations. By definition the salient features of the environment are ones we notice and remember . . . On the other hand it is conceivable that some learning through inference occurs completely unnoticed. . . . This might occur when an unknown stimulus element[1] is embedded in what is otherwise a completely familiar and comprehensible context (pp. 16-17).

Carton proposed that inferencing consists of a multi-stage process. First the learner scans what is already known in the L1, the L2, and/or 'world' knowledge. Second, new material is linked with what is known. Finally, new concepts and generalisations are established based on the (mis)match between the new material and

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[1] I would argue that an "unknown stimulus element" could be the absence of a structure in an "otherwise completely familiar and comprehensible context."

what is already known.

Stage 1:	Scanning of what is known (either L1, L2, and/or 'world' knowledge)
Stage 2:	Linking new material with what is known
Stage 3:	Establishing new concepts or generalisations

A parallel can be drawn between the 'operative principle' of Chomsky's acquisition system and Carton's multi-stage inferencing process. I argue that this 'operative principle' relies on an inferencing process.

I offer a working definition of inductive inferencing and then review the learning strategy research in SLA as it relates to this definition as justification for the assumption that inductive inferencing is a learning strategy (Rubin, 1975; Stern, 1975; Naiman et al, 1978; O'Malley et al, 1985; O'Malley & Chamot, 1990). That inductive reasoning plays a role in foreign language (FL) aptitude was suggested by Carroll as early as 1953. Carroll proposed that FL aptitude consists of four independent abilities, one of which is "inductive language learning ability---the ability to infer or induce the rules governing a set of language materials, given samples of language materials that permit such inferences." (p. 105) While Carroll remains neutral on the issue of whether language learning ability can be improved through teaching, I argue that inductive inferencing can be a learning strategy which can be taught (O'Malley & Chamot, 1990). Furthermore, it is frequently the case that a learner's performance does not reach the level of her or his ability; explicit instruction in the learning strategy of inductive inferencing may help a learner to 'tap into' this ability.

In Chapter 3, I provide justification for the instruments which were used and describe the research design. This research, based on the premise that the use of INE

can be analyzed via an investigation of the use of inductive inferencing, is designed to examine the relationship between the use of inductive inferencing and the acquisition of the ungrammaticality of Subject-Adverb-Verb-Object (SAVO) word order in French by native speakers of English.

I limit myself to adverbs of frequency and manner and to verbs in the present tense. While both English and French allow SVOA and ASVO word orders, the languages differ in that only French allows SVAO order, and only English allows SAVO order.[2] Importantly, if one assumes lack of negative feedback, nothing in the French positive input informs learners that the SAVO order allowed in their native language is disallowed in the target language.

Volunteers were obtained from four sections of French 150 at Michigan State University. All volunteers (45 students) took three pretests: a Word Order Correction (WOC) Task, an Acceptability Judgment (AJ) Task, and Raven's Standard Progressive Matrices Test. The WOC and AJ tasks were designed to test students knowledge of adverb placement in French; Raven's Matrices tests inductive ability.

The Word Order Correction Task was in the form of a cartoon story. Students were asked to correct those sentences which are incorrect. In the Acceptability Judgment Task, students were asked to decide whether both sentences are correct, both sentences are incorrect, only one is correct, or they do not know. Raven's Progressive Matrices

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[2] It must be noted that there are exceptions to this characterization of the two languages with respect to adverb placement. In French, it is possible to place the adverb before the verb for emphasis. For example, *Marie, SOUVENT, oublie ses devoirs*. This emphasis is more common in spoken discourse than in written discourse and will not occur in the first and second person singular. With respect to the characterization of English, it is possible to place the adverb after the verb if the direct object is a 'heavy NP.' For example, *I notice frequently that you are right*. However, the focus of concern in this study is basic word order and not uncommonly used constructions.

Test is a non-verbal test which is considered to be a valid and reliable test of inductive reasoning. It consists of five sets of 12 problems each presented in abstract figures/designs and combines elements of analogies, series completions, and classifications. Students were allowed unlimited time to complete all tasks. The order in which tests were taken was alternated both within a testing session and for each student.

Volunteers were divided into two groups based on class section. Teachers were asked not to correct students with respect to adverbs, nor were they to teach students the rule of adverb placement. For a 2-week period, in group 1, teaching materials containing adverbs were integrated into the teachers' regular lesson plans. In group 2, in addition to adverb 'flood,'[3] students received lessons in inductive inferencing drawn from Carton's *Method of Inference in Foreign Language Study* and from Sternberg's (1988) *The Triarchic Mind.* These exercises were given in both French and English and consisted of exercises in analogy, series completion, and classification.

Immediately following the instructional period, each group was posttested using the Word Order Correction Task and the Acceptability Judgment Task. Presumably, as Raven's Test is a measure of ability, the score on this test will not change over a two-week period. Previous studies with this test have shown that even when subjects are coached on the diagrams specifically, scores do not change. Once again, my assumption is that performance usually does not match ability; the goal, therefore, is to try to tap

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[3] The goal was that students would be exposed to positive evidence only of adverb placement in French. Adverbs of frequency and manner were integrated into the regular lessons wherever possible. Relative to the infrequency with which adverbs occur naturally in classroom discourse (Trahey & White, 1993), students are "flooded" with adverbs with this manipulation of the exercises.

ability.

Three weeks after the first posttest, students were posttested again to determine any long term effects of the teaching material.

I present the results of the study in Chapter 4. Two scores for each student were computed for the Word Order Correction Task and for the Acceptability Judgment Task. One score represents an SAVO error score and consists of the number of acceptances of or changes to this ungrammatical order. The other score, the SVAO correct score, represents the number of acceptances of or changes to this grammatical order. Repeated measures ANOVAs and Multiple Regressions of these test scores were performed to determine the change over time in addition to the main factors and interactions of the following:

Within Groups

1. Word Order Correction Task - pretest and posttests performance
2. Acceptability Judgment Task--pretest and posttests performance
3. Word Order Correction Task pretest and Raven's pretest
4. Word Order Correction Task posttests and Raven's pretest
5. Acceptability Judgment Task pretest and Raven's pretest
6. Acceptability Judgment Task posttests and Raven's pretest

Across Groups

1. Word Order Correction Pretests
2. Word Order Correction Posttests
3. Acceptability Judgment Pretests
4. Acceptability Judgment Posttests
5. Raven's Pretests

The following variables were taken into consideration: age, gender, previous years of French study, adverb input, and inferencing input. These latter two variables are described below.

An attempt was made to quantify the adverb input which the students received.

After the instructional period, each teacher filled out a questionnaire and described how each lesson was taught: as a class (1), group (2), pair work (3), individually (4), or homework (4). In this way, an adverb input score was calculated for the 2-week instructional period for each class. If a student was absent or did not do a homework assignment, this was deducted from her or his adverb input score. The assumption behind this particular quantification is that if a student must do an exercise individually (or as homework), she or he is forced to concentrate on the task at hand. Whereas, in a teacher-fronted (or class) activity, conceivably nine out of ten students could be 'tuned out.' Importantly, this scale is meant to represent the potential adverb input; I am making no claims as to the actual "apperceived input" (Gass, 1988).

Similarly, a quantified inferencing input score was given to each student in the inference groups. While inferencing was treated as the only nominal variable, a way was needed to take into account the effect of an absence on the 'amount' of inference instruction.

To summarize, the present research is based on the following arguments/assumptions:

1. Negative evidence appears to be of little use in SLA, because 1) it is not consistently provided to second language learners, and 2) when it is provided, it seems to be ineffective in altering learner language in the long term.
2. The use of Indirect Negative Evidence is similar to the process of inductive inferencing.
3. Inductive inferencing is a 'reasoning' process used in SLA.
4. Inductive inferencing is a learning strategy which can be taught.
5. Word Order Correction and Acceptability Judgment Tasks are valid instruments for measuring students knowledge of a specific linguistic structure.
6. Raven's Standard Progressive Matrices Test is a valid instrument for measuring an individual's eductive abilities.

7. In order for English speakers to learn the ungrammaticality of SAVO word order in French, they must notice the absence of this structure; this can be achieved through the process of inductive inferencing.

The dissertation concludes with Chapter 5, a discussion of the results and implications of the present research. The review in this dissertation of both empirical and theoretical studies reveals that the Learnability Problem continues to be substantiated but we are seemingly no closer to a solution, regardless of the perspective one chooses. The present research calls for a reevaluation of the approach to the Problem.

Specifically, Indirect Negative Evidence may prove to be a partial solution. Arguments from L1 and L2 acquisition researchers support the view that such a role is not theoretically out of the realm of possibility. These arguments can be corroborated with examples from the biological sciences which show that a course of development may indeed be determined by the absence of a specific environmental factor.[4] It is not unreasonable to assume that humans, as members of the biological community, would also employ a mechanism which not only 'apperceives' in general but must 'apperceive' the absence of information. I suggest that this process is at the core of inductive

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[4] While a defense of analogical reasoning goes beyond the scope of this dissertation, analogizing is not without precedence among language acquisition researchers (see Lightfoot, 1989, in addition to Critical Period studies). Examples of the use of 'indirect negative evidence' can be found in the fields of microbiology and ethology, among others. "The immune system must not let itself be stimulated to produce antibodies" against its own antigens (Jerne, 1967, p. 201). That is, an organism 'expects' the presence of similar antigens and in the absence of similarity, the organism will respond. Suppose an antigen is introduced into an animal and that antigen is similar to the animal's, then antibodies will not be produced. If, however, the antigen is not similar (that is, it is absent in the animal's repertoire), it will be recognized as foreign, and antibodies will be produced. The use of indirect negative evidence can also be found in ethology. In crocodilians, the temperature of egg incubation determines sex. If the temperature is 30°C, 100% females will hatch; at 33°C, 100% males will hatch; temperatures in between produce varying ratios of male to female. If the crocodilian population is low, females will nest close to the water where the temperature tends to be lower. As a result, more females will be produced and the population will rapidly increase. Under normal conditions, females will nest both near the water and on higher ground (Deeming & Ferguson, 1989). Thus, given the 'expectation' of a stable population, the absence of an element (crocodilians) has resulted in an alternative behavior pattern (preference to nest near the water).

reasoning.

The results of the present research may provide further theoretical and possibly empirical support for a role of INE. Specifically, the implications of this investigation are that 1) second language learners are indeed hypothesis-testers--once INE is taken into account, the theoretical need for negative evidence is eliminated; 2) the process of inductive inferencing, which is not solely linguistic in nature, is used in second language learning; and 3) SLA can be facilitated through the use (teaching/learning) of inductive inferencing.

The study of language acquisition attempts to explain a system which produces an output which exceeds the input but which in another sense is responsive to the input. The system must make maximum use of the input. By extension, if we think of ourselves as generating an 'output' (SLA theory) based on the 'input' (empirical observations) plus 'principles' of reasoning, we should consider in our hypothesis testing all the input available which includes Indirect Negative Evidence.

CHAPTER 1
THE LEARNABILITY PROBLEM

1.1. POSITIVE EVIDENCE

The Learnability, Logical, Projection, Plato's and Poverty-of-the-Stimulus Problems all refer to the question asked by Chomsky in 1987 (cited in Cook, 1988, p. 55): "How do we come to have such rich and specific knowledge, or such intricate systems of belief and understanding, when the evidence available to us is so meager?" Two problems with the evidence deal with the positive evidence available to the learner: (1) it underdetermines the final competence of the learner, and (2) it is often degenerate. White provides

> a number of examples [wanna-contraction, distribution of complementizers, constraints on wh-movement, pronouns, and parasitic gaps] where the input might be expected to mislead the child into making false generalizations about the language being learned, or where it might fail to allow the child to work out various subtle phenomena. . . . Despite the problem of underdetermination, children arrive at the full complexity of adult knowledge with comparatively little difficulty, and without the range of errors that one might anticipate. (White, 1989, p. 11)

Here, I cite just one example, that of wh-movement:

(1-1) What did John see ___?
(1-2) What did Mary believe that John saw ___?
(1-3) What did Jane say that Mary believed that John saw ___?
(1-4) *What did Mary wonder whether John had bought?
(1-5) Mary wondered whether John had bought a present.
(1-6) What did Mary hope that John had bought?
(1-7) *What does Mary believe the claim that John saw?
(1-8) Mary believes the claim that John saw a ghost.
(1-9) What does Mary believe that John claimed to have seen?
(White, 1989, pp. 8-9)

Based on the questions in 1-1, 1-2, 1-3, 1-6, and 1-9, if children were merely generalizing from the input, they would be misled into forming the ungrammatical questions in 1-4 and 1-7. The fact that the questions in 1-4 and 1-7 are not produced is taken as evidence that children are not forming generalizations from the input. Additionally, the ungrammaticality of 1-4 and 1-7 cannot be attributed to the declarative sentences, as 1-5 and 1-8 are indeed grammatical. Furthermore, White points out that semantics or pragmatics cannot explain the ungrammaticality of 1-4 and 1-7, since 1-6 and 1-9 are grammatical.

The second learnability issue dealing with the input is that of degeneracy. This refers to the fact that sentences a child may hear, while acceptable, may not be grammatical. For example:

(1-10) *Want your lunch now?
(1-11) *Going out to play?
(1-12) *Raining again.

Given such input, the child would make the false assumption that English is a null-subject language.[1] However, the competent speaker of English knows that subjects are obligatory in English. Even though there is some debate whether learners do in fact receive degenerate input,[2] it seems likely that they would be exposed to sentences such as 1-10, 1-11, and 1-12 in a naturalistic setting.[3] We therefore see that based on positive evidence alone, it is theoretically impossible for learners to become fully competent in

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[1] However, see Roeper and Weissenborn (1990, p. 159) for the proposal that "the subordinate clause [is] the locus of a unique trigger."

[2] Snow and Ferguson (1977) and Ellis (1986) cited in White (1989).

[3] As cited in Larsen-Freeman and Long (1991, p. 291): "Michael Montgomery (personal communication) has pointed out that some varieties of English, e.g. varieties of Southern American English, do in fact allow dropping of subject pronouns, especially in informal registers."

a language because there is a mismatch between the input and the final grammar attained.

1.2. NEGATIVE EVIDENCE IN FIRST LANGUAGE ACQUISITION

Lack of negative evidence available to the learner constitutes the third problem with the input and is the area that has attracted the most attention and remains the most controversial. Negative evidence refers to the corrective feedback supplied to the learner which allows the learner to arrive at intuitions regarding (un)grammaticality. Because of its influence on SLA research, it is important to look at the evolution of the L1 studies, both theoretical and empirical, dealing with negative evidence. As cited in Schachter (1991, p. 92), "it was standardly assumed after Chomsky (1965) that children constructed a grammar by using input together with innate linguistic knowledge to formulate hypotheses about possible grammatical rules, test them out on further input, holding, revising or abandoning them as necessary." The emerging significance of negative evidence can be seen in 1) Braine's (1971-written in 1967) critique of Chomsky's hypothesis-testing model of language acquisition and 2) Gold's (1967) mathematical proof showing that a wider range of languages are more learnable if the information presented to the learner includes both positive and negative evidence.[4] In Braine's article he argues:

> Since it seems clear that a great deal of negative information must be included in the input to a reasonable hypothesis-testing model, let us consider whether the child obtains and uses such information. Several lines of evidence suggest that negative information cannot be necessary for first language acquisition. First and foremost, there is the

---

[4] Gold's paradigm has since been criticized (Gordon, 1990; Bohannon, MacWhinney, & Snow, 1990) on a number of grounds: 1) Gold's assumption that the language learner is a 'tester' may not be an appropriate characterization; 2) his dissociation of learning a language from learning the lexicon of the language; 3) his assumption that language learning involves the entire grammar simultaneously; 4) his assumption that once a language is 'chosen,' that choice never changes; and finally 5) Gold's paradigm does not guarantee language acquisition in a specified amount of time, a factor which must be taken into account in a model of language acquisition.

> universality with which language is acquired at a fairly rapid rate . . . despite a wide variety of cultural conditions and child-rearing practices. . . . When one considers the difficult circumstances under which huge numbers of children are raised, it becomes clear that correcting their infants' speech must be among the least of the concerns of very many human adults. . . .
>
> Another fact worth noting is that it would often be difficult for even the best-intentioned parent to know precisely what correction to make in response to many errors. . . .
>
> Regardless of the extent to which corrections actually occur, there is little to indicate that young children are able to use such information when it is given, even in apparently simple cases. (Braine, 1971, p. 159-160)

Braine (1971, p. 161) argues "that children acquire grammar without benefit of the negative information that seems required by a hypothesis-testing theory . . ." An early demarcation between those who argue either for or against the existence and necessity of negative evidence is thus created.

The research on negative evidence has continued to center around three major issues, the first of which is: Do children make relevant errors? Relevant in the following sense: It has been argued that positive evidence alone (1-13, 1-14, and 1-15 below) would cause the child to formulate the incorrect generalization in 1-16 (the underdetermination issue) and that overt correction would then be necessary to eliminate this structure from the child's grammar.

(1-13) Who do you think that Mary met yesterday?
(1-14) Who do you think Mary met yesterday?
(1-15) Who do you think arrived yesterday?
(1-16) *Who do you think that arrived yesterday?
(White, 1989, p. 8)

The position that the learner does not make relevant errors, as in 1-16, and therefore negative evidence is not necessary for the learner to attain competence has been developed by several researchers on purely theoretical grounds (with the exception of Otsu's 1981 empirical study, cited in White, 1989). Baker (1979, p. 535) argued for "a grammatical theory that is much more restrictive . . . in the range of grammatical rules

that are permitted" so that "children must be innately programmed in such a way that they will only develop hypotheses that, if incorrect, can be corrected subsequently on the basis of positive evidence alone" (Schachter, 1991, p. 93). In the same vein, Dell (1981) proposed a learning procedure whereby the learner's first choice will always be the unmarked case, which will always be the subset grammar; therefore, the superset or marked grammar will never be hypothesized unless positive evidence warrants it. Thus, negative evidence is not necessary.

The second line of inquiry dealing with negative evidence focuses on whether corrective feedback is provided to the learner. This research naturally becomes more complex and convoluted because it also involves an attempt to describe the nature of the feedback and when it occurs. Perhaps the most cited study is that of Brown and Hanlon (1970) in which they investigated the responses of caretakers to the incorrect and correct usage of syntactic rules by 3 children. They concluded that caretakers do not correct grammatical mistakes but do provide overt correction if the truth value of the utterance is incorrect. Hirsh-Pasek, Treiman and Schneiderman (1984) and Penner (1987) concluded that mothers tended to repeat their children's ungrammatical utterances more frequently than their grammatical utterances and that these differential adult responses to children's speech decreased as children developed. A study by Demetras, Post and Snow (1986) concentrated on the existence of and the type of negative feedback provided by mothers. These authors concluded that explicit negative feedback (*Yes, that's right*; *No, that's wrong*) is infrequent and when it is provided, it is directed toward the semantic content of the child's utterance, supporting the Brown and Hanlon study of 1970. In contrast, however, implicit negative feedback (repetitions, clarification questions,

move-ons[5]) was provided differentially to well-formed and ill-formed child utterances. Contracted and extended repetitions followed ill-formed utterances more often than other forms of implicit negative feedback. Given the inconclusiveness of the results, these studies have been used as support for both the 'no negative evidence is provided' claim (Gordon, 1990; Larsen-Freeman & Long, 1991; Marcus, 1993) and the 'negative evidence is provided' claim (Bohannon & Stanowicz, 1988; Bohannon, MacWhinney, & Snow, 1990).

Bohannon and Stanowicz (1988) attempted to expand on the above mentioned studies by 1) investigating both parent and nonparent adult conversations with children (previous research had been limited to parent-child dyads), and 2) examining differential adult responses to the type of error (semantic, syntactic, or phonological).

> Results indicated that adults were more likely to repeat verbatim a well-formed sentence than an ill-formed sentence. In contrast, adults were more likely to repeat with changes, or request clarification of, a sentence containing syntactic or phonological errors than well-formed sentences. . . . (Bohannon & Stanowicz, 1988, p. 684)
>
> It should be noted that the repetitious contrasts observed in our study are not "negative evidence" in the strictest sense. . . . the information contained in adult repetitious sequences is much greater than that in simple denials. A denial informs the learner that the prior response was, in some way, incorrect. It neither informs the learner about the nature of the error nor of correct alternative ways to express the same meaning . . . The process observed in the current study offers language learners not only simple error detection but also information as to correct (or at least acceptable) alternatives. In this light, repetitious feedback by adults may be considered superior to simple denials and as qualified to assume the role of 'negative evidence'. (Bohannon & Stanowicz, 1988, pp. 688)

In response to Gordon (1990, p. 217), who argues that the Bohannon and Stanowicz (1988) results "tell us nothing about learnability or innateness," Bohannon,

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[5] Repetitions were subdivided into exact, contracted, expanded, and extended. Contracted and expanded repetitions provided syntactic or morphological correction; contracted repetitions were shorter than the child's utterance, while expanded repetitions were longer than the child's utterance. Extended repetitions added new information to the child's utterance. Move-ons were "responses that continued the conversation or that began a new topic, without either questioning or repeating (parts of) the child's preceding utterance" (Demetras et al., 1986, p. 279). Note that these authors' use of the term 'implicit negative feedback' should not be equated with recent definitions (Saleemi, 1990, 1992).

MacWhinney and Snow (1990, p. 221) maintain that "the rates of feedback found [in the 1988 study] are . . . sufficient to spur learning in many species, including concept formation tasks in humans . . . [and] that using innate factors as a 'default' explanation is a dangerous and counterproductive scientific endeavor."

Marcus (1993, p. 56) disputes the claims made by researchers (Bohannon & Stanowicz 1988; Demetras, Post, & Snow 1986; Hirsh-Pasek, Treiman, & Schneiderman 1984) who maintain that children do indeed receive negative feedback. Marcus reviews these studies and finds that "in all cases, the differences in parental replies to grammatical versus ungrammatical sentences were statistical rather categorical . . . [He] calls this type of feedback 'noisy feedback,' since parents provided each type of reply after both grammatical and ungrammatical sentences, albeit in different proportions." Marcus contends:

> 1. Noisy feedback is too weak to be a plausible way of eliminating errors;
> 2. Noisy feedback is inconsistent across parents, declines or disappears with age, and is probably not provided for all types of errors; and
> 3. Because parental reply categories are defined only with respect to the child's utterance, "correlations" between the two may be artifacts resulting from the definition of parental reply categories and of constant noncontingent properties of parental and child speech. (Marcus, 1993, p. 57)

Marcus concludes that since there is no evidence showing that noisy feedback, if it exists, is necessary for language acquisition, "internal mechanisms are necessary to account for the unlearning of ungrammatical utterances" (p. 54).

The evolution of the negative evidence studies is of particular interest for the purposes of the present research because a redefinition of negative evidence, and in fact what could be considered INE, emerges from their results. In the Bohannon and Stanowicz (1988) study, the fact that all adults tended to use recasts slightly more

frequently than other types of responses after ill-formed utterances deserves mention because this type of response could, in theory, provide the child with evidence of what is not possible by means of the absence of certain structures in the recast----in other words, indirect negative evidence. Similarly, Demetras et al (1986) found contracted and extended repetitions to frequently follow a child's ill-formed utterance. While extended repetitions may be considered positive evidence, contracted repetitions, which shorten the child's utterance, may be considered indirect negative evidence of what is not possible in the grammar by virtue of its absence in the adult response.[6]

The third line of inquiry dealing with negative evidence - do children make use of negative evidence? - has received much less attention in first language acquisition than the first two issues and of course becomes a moot point if one answers 'no' to the first issue - Do children make relevant errors? "Even when it [correction] is provided, it is typically resisted, as many parents will readily attest. McNeill (1966:69) recorded a celebrated illustration of this resistance" (Lightfoot, 1989, p.323):

> Child: Nobody don't like me.
> Mother: No, say "nobody likes me."
> Child: Nobody don't like me.
> (eight repetitions of this dialogue)
> Mother: No, now listen carefully; say "nobody likes me."
> Child: Oh, nobody don't likes me.

A similar example is provided by Braine:

> Child: Want other one spoon, Daddy.
> Father: You mean, you want THE OTHER SPOON.
> Child: Yes, I want other one spoon, please, Daddy.
> Father: Can you say "the other spoon?"

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[6] Marcus (1993, p. 55) "collapses" indirect negative evidence with positive evidence, stating that "INE depends on a reanalysis of positive evidence based on mechanisms internal to the child, rather than input external to the child." Crucially, however, there are certain structures which are absent in the positive evidence which the child reanalyzes. Thus, INE cannot, in the strict sense, be considered the same as positive evidence.

Child: Other...one...spoon.
Father: Say "other."
Child: Other.
Father: "Spoon."
Child: Spoon.
Father: "Other...spoon."
Child: Other...spoon. Now give me other one spoon?
(Braine, 1971, pp. 160-161)

Even though the data "that young children do not use negative information is indirect or anecdotal" (Braine 1971, p. 161), these anecdotal comments are supported to some extent in the psychology of learning literature. As cited in Schachter (1991, p. 95), Levine (1975) found "that younger children are more likely to exhibit a response set hypothesis, i.e., to act as though a certain hypothesis still held immediately following disconfirmation of that same hypothesis, indicating that they are less likely to take negative data into account." While there are still those, such as Braine, who reject hypothesis-testing models of language acquisition altogether, Chomskyan linguists do receive a certain amount of support from the field of psychology.

1.2.1. Summary

Thus far I have explained the Learnability Problem of first Language Acquisition, discussing in relative detail the issues surrounding the negative evidence available to the learner. These issues include: 1) Do children produce utterances which theoretically require overt correction in order to be eliminated from their grammar? 2) Is overt correction consistently provided to children? And, 3) Do children make use of overt correction? I have reviewed the arguments made on both sides of these issues, which are yet to be resolved.

1.3. NEGATIVE EVIDENCE IN SECOND LANGUAGE ACQUISITION

The role of negative evidence becomes much more complex in SLA mainly due to a proliferation of variables that could be influencing the effects of negative evidence and because of the methodological difficulties in investigating those variables. Allwright (1975) was one of the first to address this problem and attempted to categorize error types, treatment types, and learner variables (e.g. L1, cognitive style, affective factors) which may influence the learner's interpretation of the negative feedback given in an instructional setting.

Long (1977) continued this line of inquiry in a review of "descriptive studies of the classroom behaviours of teachers following learner error in an attempt to ascertain what the teachers studied currently do when providing feedback" (p.278). Long discovered a "marked lack of clarity and consistency in teacher feedback," leading him to question a hypothesis-testing process of language acquisition.

A year earlier, Chaudron (1977) conducted an empirical study of French immersion classes for English speaking students in an attempt to isolate and measure which corrective techniques led to successful correction of errors. Chaudron concluded that the results suggested a positive relationship between a form of correction which he categorized as Repetition with Reduction (S: "Le maison est jaune." T: "La maison") and successful correction by the student of errors mainly in phonology, syntax, and content. (Other types of errors included morphology and lexis).

In Chaudron 1986 (a continuation of the 1977 immersion study), the goal was to determine "how much are learners' L2 linguistic errors corrected in either French or other subject classes, relative to errors of other sorts" (p.65)? Results indicated that

linguistic and content errors were corrected with approximately the same frequency (100% and 95% respectively) in French class, whereas in other subjects linguistic errors were corrected much less frequently than content errors (37% and 88%). It should be noted that the frequency of correction did not remain constant over time. In French class the percentage of linguistic errors which were corrected dropped from 95% to 66% and the percentage of content errors which were corrected dropped to 75%; this was attributed to an increase in student participation. Moreover, the percentage of linguistic errors corrected in other subject classes remained at 37%, while the percentage of content errors corrected increased to 96%.

Chun, Day, Chenoweth, and Luppescu (1982) shifted the research focus to an examination of native speaker (NS) corrections of non-native speaker (NNS) errors in non-instructional settings. Results indicated that NSs rarely corrected errors (8.9%) made by their NNS friends. Additionally, "errors of a factual nature were most often corrected, followed by discourse and vocabulary corrections. Grammatical errors were seldom corrected" (p.545).

Brock, Crookes, Day, and Long (1986) looked at what types of NNS errors led to what types of NS responses and the subsequent effect of these responses on the speech of the NNS in informal conversations. This study examined errors in lexis, phonology, and morphosyntax (content errors were not included). Results indicated that

> Phonological errors did not appear to be related to a particular NS turn. . . . Lexical errors [were] more likely than others to trigger a side sequence in which an attempt is made to clarify the message. Morphosyntactic errors, perhaps because of their lesser communicative significance, [were] more likely to permit the main line of discourse to be continued. . . . Few effects of the NS response were observed on subsequent NNS conversation. (Brock, Crookes, Day, & Long, 1986, pp. 233-234)

The above mentioned studies are not without caveats, and while

overgeneralization may be dangerous, a brief comparison of the results may be of some use. Not surprisingly, a common finding in the studies that examined errors of content (3 of the 4 mentioned) is that teachers and NS speakers, in general, more often responded to these error types than to other types of errors. (Interestingly, this is consistent with the L1 studies which find parents more often react to the truth value of a child's utterance.) However, even teacher correction of content errors did decrease over time (Chaudron, 1986). Additionally, the correction of errors of any type represented an insignificant percentage of all interactions in the Chun, et al. study. Furthermore, while only two of the studies attempted to examine the effect of correction on subsequent NNS speech, one study (Brock, et al.) found no effect and the other (Chaudron, 1977) found only one form of correction to be effective. Even though the past studies mentioned here have been useful and have usually been used as support for the nativist position that learners do not receive negative feedback (and, therefore, correction plays a minimal role in acquisition), the results are mixed and relatively uninformative with respect to providing a clearer understanding of the effects of negative evidence in SLA. The effectiveness of corrective feedback on learner's language has recently become the focus of several studies.

In a series of studies, White (1991a, 1991b, 1992a), working within a Government and Binding framework, looked at the effect over time of positive and negative evidence on a proposed parametric difference between French and English, that is, whether or not the language allows verb movement.[7] The studies consisted of

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[7] My discussion of this work and the responses to it will focus specifically on the issue of evidence and not on the implications on the 'contents' of UG or the viability of Pollock's Verb Movement Parameter.

Francophones learning English as a Second Language. Students were divided into two groups; one group received form-focused instruction, which included both positive and negative evidence, on adverb placement; the other group received instruction only on question formation.[8] Subjects were given a pre-test, two post-tests (one immediately following instruction and another five weeks later) and a follow-up test one year after instruction. In both studies, the group that received both positive and negative evidence exhibited knowledge of adverb placement on the two post-tests, while the group that received only positive evidence did not. However, the results on the follow-up test (one year later) were the same for both groups. That is, the group that received form-focused instruction did not retain knowledge of adverb placement. One possible explanation suggested by White (1991a, p. 159) is "lack of suitable follow up or subsequent emphasis on this issue." The result that "exposure only to positive input [is] insufficient" (White, 1991a, p. 158) is consistent with studies conducted by Tomasello and Herron (1988, 1989).

From the results of their 'Garden Path' investigations, in which learners are guided into making errors of overgeneralization and transfer, these authors concluded that "students learn best when they produce a hypothesis and receive immediate feedback because this creates maximal conditions under which they may cognitively compare their own system to that of mature speakers" (Tomasello & Herron, 1989, p. 392).[9]

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[8] Assuming question formation to be one of the cluster of properties affected by the verb-raising parameter, White considers this group to be receiving only positive evidence with respect to adverb placement (White 1992a).

[9] Beck and Eubank (1991) criticize the Tomasello and Herron experiments on both theoretical and methodological grounds. Given that it has not been shown that children consistently receive or make use of negative evidence, Beck and Eubank object to Tomasello and Herron basing their work on a theory of L1 learning which requires negative evidence. Beck and Eubank also argue that the study (1989) suffers

Trahey and White (1993) as follow-up to the White studies (and in partial response to Schwartz and Gubala-Ryzak, 1992 [see below]) investigated "whether preemption operates in L2 acquisition, that is, whether (naturalistic) positive L2 input which is incompatible with the L1 parameter setting is sufficient to force parameter resetting" (Trahey & White, 1993, p. 183). Learners were exposed to an input flood of materials containing English adverbs during a 2-week instructional period. Subjects were posttested immediately following instruction and again 3 weeks later. Results indicated that "francophone learners of English responded to properties of the L2 input flood: without explicit instruction, learners' use of English SAVO order (prohibited in French) increased dramatically" (Trahey & White, 1993, p. 200). However, SVAO word order (consistent only with the French value of the parameter) was not expunged from the learners' interlanguages. The authors concluded that the L1 setting was not preempted by the L2 setting (failure of the Uniqueness Principle) and suggest that the length of time of the input flood was insufficient.

White (1991a, b) and Trahey and White (1993) draw two conclusions (among others) from their studies which are relevant to the present research:

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from such flaws, among others, as: 1) Subjects' prior linguistic knowledge was not taken into account (by means of a pretest); 2) There was variability in the elapsed time between treatment and testing of the various structures; and 3) Only one test - a translation task - was used; "it is plausible to assume that the results...will not generalize to other types of performance" (Beck & Eubank, 1991, p. 75).

1. Negative evidence is effective in helping L2 learners to master the fact that SVAO is ungrammatical in English while positive evidence is insufficient.[10] (White, 1991a, p. 158)
2. The flood might simply have been insufficient for preemption to occur. (Trahey & White, 1993, p. 201)

With respect to the first conclusion, I would argue that given the research findings which strongly indicate that negative feedback is not consistently available to or utilized by language learners, a conclusion which suggests that negative feedback may be required would imply that ungrammatical structures (in this case SVAO word order in the English of francophones) are usually never eliminated from the learners' grammars. This is certainly not the case, therefore one is still left with the need to explain how those learners who are not exposed to negative feedback manage to learn the ungrammaticality of a structure in the target language.

With respect to the second conclusion, even if research were to determine that X amount of positive input is necessary to 'switch' parameters, this still does not explain how or why the parameter is reset.

From a theoretical perspective, Schwartz and Gubala-Ryzak (1992) have argued against White's claim that explicit positive evidence and negative evidence have a short-term effect and can lead to parameter resetting in SLA. The authors explain that

> within a Principles and Parameters approach to L1 acquisition of grammatical knowledge, there are three necessary and sufficient components for attaining a steady-state grammar:
>
> a) Universal Grammar
> b) a learning procedure

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[10] Schwartz and Gubala-Ryzak (1992) contend that "in order to maintain the claim for a need for negative evidence to reset parameters in L2 acquisition, White must implicitly assume that a learner can have both values of the Verb Movement Parameter operating in the interlanguage at the same time" (White, 1992b, p. 124). These authors maintain that only one setting of a parameter can be maintained at a time (Uniqueness Principle). Citing empirical studies (White 1991a, 1991b, 1992a) and theoretical arguments (Berwick, 1985; Cook, 1991; Valian, 1990a), White (1992b, p. 125) contends that in both first and second language acquisition, learners may "entertain more than one value of the parameter at a time."

c) (contextualized) input

They further propose that there are three types of input available to second (and first) language learners:

> 1. Primary Linguistic Data (PLD), consisting of (contextualized) utterances in the ambient language;
> 2. Negative Evidence (NE), consisting of information about the impossibility of a form or utterance;
> 3. Explicit Positive Evidence (EPE), consisting of descriptive information about the language. (Schwartz & Gubala-Ryzak, 1992, p. 2)

"The basic idea is that PLD alone are used by UG in combination with the learning procedure to create a grammar" (Schwartz, 1993, p. 151).

Citing work such as Cohen and Robbins (1976), which indicates that "in the face of seemingly ample ND [negative data], to which L2ers have often been repeatedly exposed, sometimes even consistently and sometimes even over years and years, L2ers' hypotheses seem resistant to revision" (Schwartz, 1993, p. 149), Schwartz and Gubala-Ryzak (1992, p. 1) maintain that, at the level of syntax, "the grammar-building process cannot make use of negative evidence to restructure (Interlanguage) grammars--irrespective of logical need." These authors contend that only PLD (as in L1 acquisition) can reset the Verb Movement Parameter and that the short-term effects found in White's studies are the result of changes in the subjects' linguistic performance but not their linguistic competence. Moreover, the positive evidence in the White studies was not of the "appropriate" kind;[11] that is, "the form-focused instruction . . . was too explicit to tap unconscious parameter setting mechanisms" (Trahey & White, 1993, p. 187).

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[11] Schwartz and Gubala-Ryzak offer examples of the positive evidence necessary to reset the parameter such as:

Not to completely wash the soap out of my hair is a nuisance.

John believes Mary not to usually beat her brother at chess.

White (1992b, p. 127) points out that such "data are marginal and obscure, not at all likely to occur in the primary linguistic input to the learner, a problem Schwartz & Gubala-Ryzak recognize."

Furthermore, following Fodor's (1983) modular theory of mind, Schwartz and Gubala-Ryzak (1992) propose that the linguistic knowledge which results from NE and EPE cannot serve as input to the language acquisition process.

Schwartz (1993, p. 153) offers the following analogy:

> Take a bearded man who moves to a foreign place. Unbeknownst to him, all men must be clean shaven in this culture. He soon discovers this custom, and he is the type that tries to fit in as best he can in other cultures. Luckily for him, he has the solution: He (coincidentally) brought an electric shaver along, so logically the shaver is what is necessary to solve his problem. He goes to his hotel and plugs it in, but nothing happens. The current is different. It turns out that a transformer is needed to make the shaver work. Even though the shaver is necessary, it cannot be used.

The crucial step in this cross-cultural experience, which Schwartz ignores, is that the bearded man *notices* the *absence* of beards in the new culture. He then compares this with his own appearance and realizes that his facial features are in need of alteration. In essence, the shaver is not necessary at all; he can use a straight-edge. What is necessary is that the man initially recognizes the mismatch between the look he is sporting and that of the men in his new culture (see Chapter 2).

Schwartz (1993) elaborates on the issue of evidence and makes three claims which I would like to address:

1. PLD alone can "trigger" UG in grammar construction; (p. 158)
2. An approach to building linguistic knowledge that assumes general (hence, non-domain-specific) hypothesis-testing procedures cannot explain why ND (and explicit data) do not work more fruitfully than they do in L2A; (p. 159)
3. Negative Data [consists] of explicit and perhaps *implicit* [italics added] information about the impossibility of a form, utterance, or sentence. (p. 151)

Regarding the first claim, as mentioned above, Schwartz (1993) and Schwartz and Gubala-Ryzak (1992) maintain that the only 'appropriate type' of input which can engage the grammar-building process is PLD. One immediately wonders what it is about PLD which makes it appropriate. To this Schwartz replies (1993, p. 158) that "the only thing

we know about what 'appropriate type' means is that PLD necessarily must be it, since PLD are what build L1 grammars." PLD has been defined as utterances in the ambient language. I would argue that we are still no closer to a definition of what 'appropriate type' is or to a clearer characterization of PLD. Furthermore, I would suggest that the appropriateness of the input can only be defined relative to the specific second language learner: what may be too explicit/inappropriate for one learner may be not explicit enough for another. In other words, attempting to find some intrinsic feature of the input which renders it 'appropriate' may be a futile effort. Rather, I suggest that it is features of the input in conjunction with learner internal variables which result in 'appropriateness.' This leads to my argument with the second claim which is closely tied to the flaw in the third claim.

Leaving aside the issue of UG, let us assume that there are at least two necessary components to SLA: 1) a learning procedure, and 2) contextualized input. Let us further assume that this learning procedure is responsive to the environment, or the contextualized input. If we accept the research which suggests that negative evidence is frequently not available to language learners, it is necessary then for this learning procedure to adapt and function in the absence of negative evidence. If the use of Indirect Negative Evidence (Chapter 2) is included as an integral part of the (hypothesis-testing) learning procedure, the theoretical need for negative evidence disappears, and it therefore becomes a moot point to "explain why ND and EPE do not work more fruitfully." That is, they do not work, because they are not needed.

Finally, Schwartz (1993, p. 151) mistakenly conflates "explicit and implicit information about the impossibility of a form, utterance or sentence" as Negative Data.

Explicit negative data is overt correction which informs the learner of what is not possible in a given language. It is external to the learner, a part of the contextualized input to which the learner is exposed. However, implicit (or indirect) negative evidence is not, strictly speaking, a part of the learner's linguistic environment in the same way that explicit negative evidence is. In order to qualify as Negative Data, the implicit information, or absence of a structure, must be equated with ungrammaticality. This necessarily involves a learning strategy or procedure and must be treated as distinct from explicit Negative Data (Pinker 1989).

1.3.1. Summary

From this cursory review of the SLA investigations into the issue of negative evidence, several tentative conclusions can be made. First, in both first and second language acquisition situations, it appears that language learners are not consistently corrected. Second, when overt negative evidence is provided, it seems to be ineffective in altering learner language in the long term. Finally, and most importantly, these empirical studies and theoretical discussions have either ignored and/or misconceptualized a role for indirect negative evidence. In the following section, therefore, I return to the original definition and elaborate on the concept.

1.4. INDIRECT NEGATIVE EVIDENCE

> . . . if certain structures or rules fail to be exemplified in relatively simple expressions, *where they would be expected to be found* [italics added], then a (possibly marked) option is selected excluding them in the grammar . . . (Chomsky, 1981, pp. 8-9)

That is, the absence of a feature or features is "noticed" by the learner. In a sense, indirect negative evidence is a misnomer in that it is not a form of indirect correction,

but rather it is an indirect means of letting the learner know that a feature is not possible because it is never present in the expected environment. The notion of INE assumes that a domain of expectation exists; otherwise, the absence of a feature would be insignificant in part due to the fact that the potentially absent features would be infinite. It is precisely innate linguistic knowledge which establishes a framework of expectations. It, therefore, cannot be suggested that non-occurrence of certain sentences would cause the learner to treat them as ungrammatical or that INE replaces innate knowledge (White, 1989).

Chomsky's statement that "indirect negative evidence may be relevant" for language acquisition actually seems to be more applicable and testable in SLA than in L1 acquisition. Even those who are adamantly opposed to a UG approach to SLA cannot argue against the supposition that a second language learner would expect to find certain features in the target language based on the instantiation of features in the L1 and would notice the absence of those features. For example, on a very simplistic level, the English speaker learning Spanish or Italian is going to notice the absence of subjects in certain environments. In other words, it is possible to examine the issue of INE in SLA without first making any UG-based assumptions of markedness, principles, or parameters. Additionally, given the inconsistent results of the negative evidence/corrective feedback studies, INE may play a larger role in language acquisition than previously suspected and has been ignored for too long.

1.4.1. Indirect Negative Evidence In First Language Acquisition

Lasnik (1989), Valian (1990), and Saleemi (1990, 1992) argue for a role of indirect negative evidence in first language acquisition from a theoretical perspective.[12] While Valian concentrates on the learner as hypothesis-tester, Lasnik assumes hypothesis testing but focuses on the structural contents of Universal Grammar. Saleemi combines a reanalysis of the null-subject parameter with domain-specific learning procedures.

As previously stated, Lasnik uses principles of grammar and a theory of markedness to eliminate the need for negative evidence in acquisition.

> If the child does not have access to negative evidence . . . then Universal Grammar presumably does not make available choices that can only be resolved by such evidence. . . . [and] the concern is exclusively with the situation [where] the target language is a proper sublanguage of the hypothesized language. Every structure of T is also a structure of H, but there are structures of H that are not in T. Thus, the learner would . . . need the information that the 'excess' structures are impossible. (Lasnik, 1989, p. 89)

Lasnik examines null subjects, contraction, and dative alternation. The discussion here is limited to null subjects and dative alternation. His argument proceeds as follows: Suppose that English (-null subject) is the target language and that markedness is irrelevant. If the child incorrectly hypothesizes +null subject, the hypothesized grammar will contain English (the problematic situation described in the quote above). According to Chomsky's definition, when the child does not hear +null subject sentences, this will be indirect negative evidence that the hypothesized grammar is wrong, and the child will reset to the correct -null subject parameter. Even if the parameter is preset, if +null subject is the unmarked value, the child is forced to make an incorrect overgeneralization for English (but correct for Spanish or Italian). But again, the absence of sentences with

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[12] Lasnik first argues that indirect negative evidence could substitute for negative evidence and then goes on to show that markedness could often replace the need for indirect negative evidence. Here, I will naturally be concentrating on the initial part of his argument.

null subjects will indirectly indicate that the guess is wrong. As with one of White's criticisms of indirect negative evidence, Lasnik questions under what conditions is non-occurrence of sentences equated with ungrammaticality. Chomsky's Avoid Pronoun Principle (1981) states that "every language would prefer a null subject to an overt one. Thus, since null subjects are to be expected, their absence is relevant evidence. This suggests, but does not require, that the grammatical rule or rules allowing null subjects should constitute the unmarked case" (Lasnik, 1989, p. 91). However, Lasnik suggests that the situation be reversed. Suppose that -null subject represents the unmarked value. Therefore, the child's initial guess will never contain the target language (see Dell in section "Negative Evidence in L1"). For the child learning English, -null subject is the first guess and will not be disconfirmed by positive evidence. For the child learning Spanish, the initial guess will be disconfirmed by sentences lacking overt subjects. In other words, indirect negative evidence, the absence of overt subjects, is 'noticed' by the learner and aids in acquisition. It should be noted that both Lasnik and Chomsky rely on indirect negative evidence and show how acquisition could proceed in the absence of negative evidence; moreover, Lasnik's proposal circumvents the problem of the target language being a subset of the hypothesized language.

The problematic nature of dative alternation with respect to acquisition continues to be the object of examination by researchers. Lasnik begins his argument with a brief summary of previous work. He examines the following constructions:

(1-17) John gave the book to Fred.
(1-18) John gave Fred the book.
(1-19) John donated the book to the library.
(1-20) *John donated the library the book.

According to Baker (1979), 1-20 would never be produced by a child. However, Mazurkewich and White (1984) showed that children do overgeneralize the subcategorization rule, and argued that children pare down to the correct rule with positive evidence alone using a lexical redundancy rule. In the following subcategorizations, 1-21 is the target rule and 1-22 is the overgeneral initial rule:

(1-21) $\left[\begin{array}{l} + \ V_i \ (monosyllabic) \\ + \ \_\_ \ NP_1 \left[\left(\begin{array}{l} to \\ for \end{array}\right)\right] NP_2 \end{array}\right] \leftrightarrow \left[\begin{array}{l} + \ V_i \ (monosyllabic) \\ + \ \_\_ \ NP_2 \, NP_1 \\ NP_2 \ prospective \ \ possessor \ of \ NP_1 \end{array}\right]$

(1-22) $\left[\begin{array}{l} + \ V_i \\ + \ \_\_ \ NP_1 \left[\left(\begin{array}{l} to \\ for \end{array}\right)\right] NP_2 \end{array}\right] \leftrightarrow \left[\begin{array}{l} + \ V_i \\ + \ \_\_ \ NP_2 \, NP_1 \end{array}\right]$

As can be seen, the overgeneral rule 1-22 lacks semantic and syllabic specifications. Mazurkewich and White claim that once the child notices that the indirect object is the prospective possessor whenever the double object construction is allowed as an alternative to the prepositional phrase construction, this fact will be incorporated into the child's lexical redundancy rule. Then, when the child notices that verbs in dative alternation constructions are monosyllabic, this fact will be added to and finalize the rule. Thus, dative alternation is acquired based on positive evidence alone.[13] However, as Lasnik points out, notice that the overgeneral rule 1-22 includes rule 1-21. This means that anything described by 1-21 is also

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[13] Mazurkewich and White (1984) dismiss INE as a viable solution on the grounds that 1) it would require UG to specify which subcategorizations are possible with which verbs under which situations; and 2) "the child would have to be able to distinguish between the output of his own grammar and those of other people, and between other children and adults" (p. 272). Lasnik's proposal that the child notices when alternation does not occur (that is, UG does not specify every instance when it must occur) solves the complexities raised in the first objection. Mazurkewich and White's second objection could be applied to any proposal of language acquisition and therefore does not seem to be a valid argument against INE specifically.

described by 1-22. So, we have returned to the problematic situation discussed above where the target language is a subset of the hypothesized language, and in principle, negative evidence should be required in order to retreat from the incorrect overgeneralization. Additionally, Lasnik questions what would cause the learner to abandon a successful rule; no positive evidence would falsify the rule, but rather the rule

> fails to exclude certain classes of non-occurring alternations. What the child must be noticing, then, is that the alternation does not occur unless the requirements are met. It is clearly not sufficient to notice that the alternation does occur if they are met. But this is precisely indirect negative evidence . . . and there is no obvious way around the need for [it]. (Lasnik, 1989, p.96)

In summarizing, Lasnik states:

> We have considered, in a preliminary way, how to explicate the notion "where they would be expected to be found," which is crucial to the learner's successful use as data of the absence of certain sentences. . . . linguistic theory (i.e., the structure of the brain) simply does not make available a grammar that is otherwise just like that of English but that fails to generate the specific sentence *The man left*. If this is the right answer (and it is hard to see what an alternative might be) the learner will pay no attention to the absence of the example in the data. There could be no rule or parameter for which that absence would constitute relevant evidence. (Lasnik, 1989, p. 97)

Valian also works within a UG framework, but unlike Lasnik (1989), Lightfoot (1989), and Roeper and Weissenborn (1990), her focus is not on the triggers (that is, the linguistic environments which constitute relevant data) but rather on establishing logical and psychological constraints which an acquisitional model must satisfy. Other researchers assume that a parameter is preset to avoid the possibility that a learner will hypothesize a grammar which is larger than the target language. Using the null subject parameter in her description, Valian (1990a, 1990b) argues against this assumption.[14]

Valian's model (1990b) begins with the Input Constraint. A model of acquisition

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[14] Kim (1993) argues against Valian's (1990a) dual-value solution for setting of the null-subject parameter to which Valian (1993) responds. As these discussions do not deal directly with the issue of Indirect Negative Evidence, they will not be covered here.

must be able to resolve the fact that children may hear ungrammatical, yet acceptable, sentences (the degenerate problem) and that children must learn to distinguish between the two. Otherwise, upon hearing sentences such as *Want your lunch now?* or *Raining out*, the English speaking child's parameter would be mistakenly set to the positive value.

> A parser assigns syntactic structure to a string of words. It labels each word according to its syntactic category; it groups the individual lexical items into phrasal categories; it indicates the hierarchical structure of the string. A parser is fed by a grammar, and cannot parse beyond its resources. (Valian, 1990b, p.122)

Therefore, the constraint on the parser is the grammar that feeds it. Valian explains how the parsing constraint disallows a preset parametric value in the following manner. Assume that the preset value is -null subject (English) and that the target language is +null subject (Spanish). The child will hear +null subject sentences, but since the parser is fed by an English grammar, these sentences will not be labeled as "sentence" by the parser, and therefore, the child would never switch to the appropriate +null subject language. Likewise, suppose the target is English. Upon hearing +null subject sentences, if the parser labels these as "sentence," and switches to the +null subject setting, this would be incorrect. Conversely, suppose the preset value is +null subject and the target language is -null subject. When the child hears +null subject sentences, these would be labeled "sentence" which is incorrect.[15] Therefore, based on the above two constraints, Valian concludes that the model, or acquisition mechanism, must provide the child with both values of a parameter.

The Inconclusiveness Constraint states:

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[15] Valian argues that indirect negative evidence cannot work with a preset parameter value because of a time limit problem. How long does the child wait before concluding that she is not going to hear a form that she expects based on the preset value. However, as will be seen, indirect negative evidence does play a role in Valian's model. Lightfoot (1989, 1991) and Roeper and Weissenborn (1990) avoid the time limit problem by positing "triggering domains" which make it "unnecessary to have any sophisticated tabulator of input sentences" (Roeper & Weissenborn, 1990, p. 147).

> Parser failure is not sufficient reason for the child to change her grammar, nor parser success a sufficient reason for a child to maintain her grammar. . . . Parser failure is inconclusive because the child is limited by her performance mechanism. As a result, she will fail to parse sentences that are fine as far as her grammar is concerned, but are beyond her computational ability.
>
> Parser success is inconclusive . . . [because] by giving the child both values of the parameter simultaneously, we eliminate some opportunities for parser failure: the child will be able to parse strings compatible with both values . . . (Valian, 1990b, p.126-127)

As a result of this constraint the acquisition mechanism "must be able to evaluate the importance of parser failure and parser success" (Valian, 1990b, p.127).

The Consistency Constraint "is a requirement on theory construction generally, and is introduced as a constraint on the child's theory of the language. The child will want an internally consistent grammar" (Valian, 1990b, p.127). Given that the child is equipped with both values of a parameter, she or he may be able to parse all input. But, since these parsings would be inconsistent with each other, the Consistency Constraint dictates that the child will continue to modify her or his grammar until all rules are consistent.[16]

Given the above constraints and the assumption that both values of a parameter are available to the child, Valian proposes that the language acquisition mechanism must be able to integrate and evaluate all the data and determine which value is more compatible with the input. Her Comparison Model is such a mechanism. It allows the child to compare, both observationally and experimentally, the input for "distributional regularities" using both positive and indirect negative evidence. In the case of null subjects, observational comparisons entail the child noting "differences in adult subject use as a function of the cooccurring syntactic and discourse context" (Valian, 1990b, p.131). If the target language is +null subject, subject omission will be all-pervading; whereas, if -null subject is the target,

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[16] The Consistency Constraint proves especially problematic for SLA. It may imply that the learner may be entertaining multiple Interlanguage grammars. No such claims are being made here, and this issue is not addressed, as the Comparison Model is the aspect of Valian's framework which is relevant to the present discussion.

subject omission will be utterance-initial. In order for observational comparisons to be effective, "different forms of usage in different contexts must occur with sufficient frequency" (Valian, 1990b, p. 132). The other form of comparison, experimental, allows the child to compensate for insufficient input. By this process, the child produces an utterance and then compares her or his utterance with the adult response. For example, suppose "the child is (unconsciously) trying to decide between two competing hypotheses, A and B" (Valian, 1990b, p. 132). She or he will produce both A and B-type utterances . "If the adult replies are structurally and lexically similar to the child's,[17] they can be compared with the child's utterance, and used to choose between hypotheses A and B" (Valian, 1990b, p. 133). If the adult replies are A-type, regardless of the child's utterance type, the child will conclude that hypothesis A is correct. Valian claims that this comparison process eliminates the time limit problem associated with the use of indirect negative evidence. (That is, suppose a structure is only infrequently used, how long should the child wait before concluding that the structure does or does not exist in the grammar?) By Valian's account, the problem now becomes an empirical one and "the child has a procedure that gives her good reason to expect a structure in the short run, then she can integrate the lack of appearance with the other data at her disposal" (Valian, 1990b, p. 134).

Saleemi (1990, 1992), focusing on binding theory and the null-subject parameter, first argues that the "binary-valued formulation of the parameter . . . may be descriptively inadequate . . . [and proposes that a multi-valued formulation may] directly capture a wider range of variation . . . [without requiring] the postulation of many additional grammatical

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[17] Here, Valian draws on Levelt and Kelter's (1982) "correspondence effect" - the tendency of a listener to respond to a speaker by using a similar structure or vocabulary - as support.

mechanisms to the system" (Saleemi, 1990, pp. 235-36). Saleemi (1992, p. 109) suggests the following:

> The null-subject parameter
> Σ may optionally remain invisible in PF, where Σ represents a class of subjects containing:
>
(a) Ø;	(English, French, Swedish)
(b) nonarguments; or	(German)
(c) nonreferential arguments; or	(Yiddish)
(d) any arguments whatsoever	(Spanish, Italian)

This formulation erroneously predicts that pleonastic,[18] that is, (b) or (c), pro-drop will be optional, as is referential pro-drop; while referential pro-drop is generally optional, non-referential pro-drop is obligatory in most pro-drop languages. Saleemi, therefore, qualifies the parameter and suggests that "since pleonastic subjects are nonreferential, they would be superfluous and thus might not, or might have ceased to, exist in a null-subject language . . . [lack of] functional usefulness [has resulted in] gaps in languages (though perhaps not in their grammars) . . ." (Saleemi, 1992, p. 110).

The irregular distribution of pleonastics in languages still causes a problem, however, both for the proposed multi-valued parameter and for learnability. Specifically, languages do not form a subset hierarchy as would be predicted by the parameter, rather they form both subset and intersecting relations. As a partial solution, Saleemi suggests that there may not be a direct correlation between a parametric value and a particular language; this in turn presents the following learnability problem: If the language learner is exposed to positive evidence which does match her or his expectations (based on a given parametric value), how

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[18] Saleemi (1990, p. 237) defines pleonastics as nonreferential subjects of which there are two types. A nonargument, which "is an expletive subject which is obligatorily construed with a postverbal NP or clause; and a quasi-argument, which "is the expletive subject of atmospheric-temporal predicates (e.g. a weather predicate."

is this mismatch resolved?

Saleemi proposes that a "markedness [defined in terms of parametric values rather than in terms of the respective languages] condition defines the order in which the parametric choices expressed in the null-subject parameter are explored . . . and [a] learning principle that can used to select the correct value of the parameter" (Saleemi, 1992, p. 116) based only on positive evidence.

Saleemi's learning principle consists of two processes, the first of which is Positive Identification:

> A parameter value is positively identified just in case all observed positive instances are consistent with that value.

Positive identification is a "selective mechanism" which is completely successful only if the input perfectly corresponds with the parametric value. However, as stated above, this is not ensured. For example, assume the target language is (b), in which argumental subjects must be overt. When the learner is exposed to null non-arguments, the parametric value may be identified, but nothing prevents the learner from overgeneralizing within the language and producing overt non-arguments.

Saleemi (1992, p. 118) therefore proposes a second process, Exact Identification, which may be considered an "observational strategy. . . . Suppose that the language defined by the target value (a) of a parameter is L(a), and the corresponding ambient language is L(|a)."

> A parameter value (a) is exactly identified just in case
> a. it is positively identified; and
> b. the difference between L(a) and L(|a) is known.

Exact Identification thus "requires that the learner should discover the exact extent of

difference between the language predicted by the target parameter value and the 'incomplete' ambient language."

Exact Identification could result if the learner were to undergeneralize within the hypothesized language, which could be achieved if the learner notices the absence of the relevant types of overt pleonastic subjects in the ambient language. In other words, certain structures are expected based on the learner's grammar (the positively identified parametric value); if these structures are absent in the ambient language, "the learner is capable of the negative inference" (Saleemi, 1992, p. 118) that these structures are impossible in the target language. That is, the learner makes use of indirect negative evidence.

Still, a problem remains. How does the learner know to equate absence with ungrammaticality? The mechanism which Saleemi proposes draws on Oehrle (1985) who proposes that the acquisition of certain features of language can be modelled after a set of mathematical functions. Saleemi expands on this model and proposes a strength function which distinguishes nonoccurrence from total absence.

> If the attested examples do not acquire a threshold level k of strength, or if the nonoccurrence of such examples does acquire k, by a designated time t^*, the learner, construed as function f, will then be entitled to a negative inference as to the nonexistence of [a form in the ambient language]. On the other hand, if a derived form does acquire k by t^*, the learner will decide that form is in the ambient language. (Saleemi, 1992, pp. 119-120)

Importantly, the strength value is not necessarily absolute, but can be relativized. If the frequency of occurrence of two items, x and y, is related, the strength value of each item will be 'interpreted' in comparison with the other. In this way, the learner will not exclude items which may just be rare in the language.[19]

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[19] Related to the issue of 'rare' structures is the criticism that the use of Indirect Negative Evidence would result in the exclusion of more complex, and thus uncommon, structures in a learner's language. Saleemi appeals to Randall's (1985) indirect positive evidence as a solution: "that certain aspects of a grammar not figuring directly or prominently in positive data might follow indirectly from its other aspects

The final issue which Saleemi addresses is the psychological feasibility of the use of indirect negative evidence. One objection to its use is that it invokes a (possibly unwarranted) complex learning system. In conjunction with a principles and parameters approach to language acquisition, which initially restricts the choices made available to the learner, Saleemi offers the following constraint intended to "ensure a sufficient degree of conservatism in the learning system" (1992, pp. 127-128):

> On no account can the choice of a parameter value, or a change in the value of a parameter, be made solely on the basis of indirect negative evidence.

In sum, according to Saleemi's framework, the choices made available to the learner are restricted by parametric theory; the learner is "sensitive" to the nonoccurrence of certain data which may be expected "under the preexisting schemas;" based on positive evidence alone, a parameter value is Positively Identified; "indirect negative evidence may then be invoked in the event of the need to exclude some consequences of a choice" (Saleemi, 1992, p. 128). Saleemi has offered a computational mechanism, or strength function, whereby the learner may make use of indirect negative evidence. The strength function consists of a frequency threshold and a time threshold. Parameters are set when a threshold is crossed. The frequency threshold may be crossed by positive evidence; "if after a certain amount of time, the frequency threshold has not been crossed, (the learner) assumes it never will be; once the time threshold is crossed a decision is made" (Archibald, 1993, p. 4).

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that are directly and explicitly exemplified" (Saleemi, 1992, p. 124). The machine induction system of Berwick and Pilato (1987) was able to 'learn' fully expanded English auxiliary phrases (e.g. *could have been being given*) from simple, frequently occurring strings.

1.4.1.1. Summary

The purpose of this review has been to show that within L1 acquisition, it has been argued that INE may provide a better theoretical explanation of the acquisition of dative alternation (Lasnik) rather than sole reliance on positive evidence (Mazurkewich & White). Additionally, INE plays a crucial role in somewhat different accounts of the acquisition of null-subjects. Lasnik attributes the language learner with a preset (unmarked) value of -null subject. By this account, -null subject is the first guess and will not be disconfirmed by positive evidence for the child learning English. For the child learning Spanish, the initial guess will be disconfirmed by sentences lacking overt subjects. That is, Indirect Negative Evidence, the absence of overt subjects is noticed by the learner, aids in acquisition. Saleemi suggests a four-valued null subject parameter. Because the Subset Principle and positive evidence will not guarantee that the correct value will always be selected, Saleemi proposes a redefinition of markedness in terms of parameter values rather than in terms of the respective languages along with a learning procedure which relies on both positive and Indirect Negative Evidence. A parameter is identified based on positive evidence alone; a parameter is then Exactly Identified through the use of INE; the learner notices the absence of certain structures which are predicted based on the positively identified parameter. Finally, Valian proposes a different approach to the problem and suggests a series of logical and psychological constraints which an acquisitional model must satisfy. She then suggests possible mechanisms which might meet the requirements imposed by the constraints. Among these is a Comparison Model, which allows the child to observationally and experimentally compare, using both positive and Indirect Negative evidence, the input for distributional regularities. Thus, all three researchers incorporate the use of Indirect

Negative Evidence into their proposals of the acquisition of specific structures. While Lasnik attributes the language learner with a 'preset' value, Valian and Saleemi argue against this position and in turn focus more closely on the learning procedure. Both offer somewhat complex computational mechanisms, each of which relies on the frequency with which an item occurs (or does not occur) in the input. The importance of frequency has been addressed in SLA, which is discussed in the next section.

1.4.2. Indirect Negative Evidence in Second Language Acquisition

Theoretical support within the field of SLA for the role of INE can be found in Gass' notion of "apperceived input" (1988).[20] By this account, there are certain factors which "serve as ambient speech filters . . . and may determine why or why not some ambient speech, or input, passes through to the learner" (Gass, 1988, p.202, p. 204). Frequency, prior knowledge and attention are among the ones mentioned by Gass which are particularly relevant to the present discussion. With respect to frequency, Gass states ". . . something which is unusual because of its infrequency may stand out to the learner" (Gass, 1988, p.202). This concept is at the core of indirect negative evidence; that is, "infrequency" (or absence) will be noticed by the learner. Prior knowledge is what makes the input either meaningful or meaningless, and it in turn "activates" selective attention which "allows a learner to notice a mismatch between what he or she produces/knows and what is produced by speakers of the second language" (Gass, 1988, p. 203). We thus have an explanation for Chomsky's phrase "where they would be expected to be found."

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[20] The relationship between Gass' entire framework and indirect negative evidence goes beyond the scope of this proposal, but will be addressed in the dissertation. The focus here will be on the similarity of her conceptualization of how "ambient speech" becomes "apperceived input" and the notion of Indirect Negative Evidence.

Working within phonology, Archibald (1993) supports the view that INE must be taken into account in language learning but argues that even if the learner does recognize a mismatch between the input and the output (that is, notices indirect negative evidence), there still remains the problem of knowing what needs to be changed in the output. Further, "indirect negative evidence also does not specify what action is to be taken to remedy the error. This is the problem of blame assignment . . . a term coined in cognitive science and artificial intelligence [which] has to do with how a learner changes a complex system on the basis of error detection" (Archibald, 1993, p. 5).

Archibald therefore shifts focus from the frequency of an item in the input to a concentration on the items themselves. He argues that to date the relationship between triggers and parameters has been neither constrained nor specified. He suggests that there are specific cues which are appropriate for particular parameters, which he formalizes as:

If *x* is found where *y* was expected, change parameter *z*.

According to Archibald (1993, p. 8), the concept of appropriate cues would

1. Restrict the hypothesis space of the learner in terms of possible actions;
2. Acknowledge that expectations (perceptions) are guided by linguistic grammar (as well as production); and
3. Address the problem of blame assignment.

Archibald further argues that admitting the use of INE into a learning theory would allow the inclusion of induction into language learning. Noting, however, that this process must be constrained in some way, he suggests that UG and a principle of Lexical Dependency would provide such constraints. Lexical Dependency was first suggested by Newson (1990, p. 179) as "a mechanism which generalizes learned information concerning a particular lexical item to all other relevant lexical items. . . . Let us refer to this learning

mechanism as a "Lexical Dependency" as the setting of lexical parameters of certain items are, under these assumptions, dependent on those of others."

Archibald (1993, p. 10) claims that

> induction constrained by possible representations of UG and a principle of Lexical Dependency [would] account for (1) the time it takes to reset a parameter, (2) stages in interlanguage development when the learners are apparently allowing both settings of a parameter, and (3) the individual variation in patterns of interlanguage change over time.

There are three assumptions implicitly made by Archibald which I would like to address. First, he assumes that the domain of expectation for the second language learner is UG. As stated in the Introduction, I argue that the more parsimonious assumption is that the domain of expectation is provided by the L1. Notice that limiting the domain has the same effect as Archibald's 'appropriate cues' in that the hypothesis space of the learner is immediately restricted. This is not to say that I disagree with his notion of appropriate cues. Rather, a limited domain of expectation in conjunction with an appropriate cue may provide the desired constraint on induction in addition to 'directing' the learner toward the correct 'action.'

Second, Archibald states "that some aspects of language acquisition involve induction while other aspects involve deduction. It . . . seems fitting that the domain of inductive learning is the lexicon . . ." (Archibald, 1993, p. 9). If one assumes that induction is a learning strategy, I believe it is a dangerous move to suggest that learning strategies/procedures are limited to and vary according to (perhaps artificially separated) linguistic subfields. A more fruitful, but more tedious, line of inquiry may be to investigate the variability of inductive learning as a result of individual learner characteristics. While it may very well be that certain linguistic areas are more 'conducive to' acquisition through induction, individual variables play a critical role and should not be eliminated from the

equation.

Finally, and most importantly, Archibald provides no justification that the use of INE is similar to induction: "I also feel that one of the benefits of including indirect negative evidence in our learning theory is that it allows us to incorporate the process of induction into language learning" (Archibald, 1993, p. 8).[21]

1.5. CHAPTER SUMMARY

In this chapter I have provided a brief overview of the Learnability Problem in first language acquisition. I have also summarized the theoretical and empirical arguments which suggest that the Learnability Problem of L1 acquisition, with respect to incomplete evidence available to the learner, applies equally to SLA. I have examined in relative detail one aspect of the Learnability Problem, namely the role of negative evidence in both first and second language acquisition. The research in both first and second language acquisition indicates that when learners make errors they do not consistently receive overt correction or if they do receive correction, it appears that in many instances they ignore it. I have reviewed the proposals which have suggested that the use of INE in certain domains may provide a partial solution to the Learnability Problem. These proposals come from both L1 and L2 researchers, working in somewhat differing frameworks, several of whom have alluded to the possibility that the use of indirect negative evidence is part of the learning procedure, a learning strategy, or induction. However, the distinctions and relationships between 'learning strategy,' 'induction,' and 'indirect negative evidence' have not been

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[21] Saleemi makes a similar assumption, somewhat implicitly, in his discussion of "exact identification (which) further consists of inferential processes..." (p.121) and his discussion of Berwick and Pilato's machine induction system (1992, pp.124-126). However, he later states that "the relationship between various types of evidence and different *learning strategies* [italics added] certainly deserves to be probed in considerable depth" (1992, p. 139).

explicitly described in the literature reviewed above. In order to assume that the use of Indirect Negative Evidence is indeed an empirical problem which can be solved (Valian, 1990, p. 134) and then proceed to "empirically investigate the psychological plausibility of [its] use" (Saleemi, 1992, p. 139), it is necessary to define as precisely as possible the processes under investigation and to provide valid argumentation for any analogies made. Therefore, the proposal that the use of indirect negative evidence is analogous to induction which in turn is a learning strategy, while implicitly accepted by the above authors, must be substantiated. This is the topic of Chapter 2.

CHAPTER 2
INDUCTIVE INFERENCING

In this chapter I first define inductive inferencing/reasoning. I then provide examples of the use of induction in the processing of meaning in a first language. I describe a process of inferencing in SLA and argue that this inferencing process is analogous to the use of Indirect Negative Evidence (INE), both of which involve the use of inductive inferencing. I contend that the acquisition of the ungrammaticality of a specific linguistic structure may depend on the use of inductive inferencing or INE. I offer a working definition of inductive inferencing and then review learning strategy research in SLA as it relates to this definition. Finally, I summarize representative studies in the teaching of learning strategies and discuss some of the issues left unresolved which the present research partially addresses.

2.1. INDUCTIVE INFERENCING

In *The Logic of Scientific Inference*, Trusted (1979) distinguishes between deductive inference and ampliative inference. Deductive inference is in accordance with accepted rules of logic. If the rules are correctly followed, the conclusion cannot be false if the premises are true, because the conclusion cannot contain more information than is found in the premises. In ampliative inference (eduction and induction), the conclusions contain more information than is contained in the premises. Both eduction and induction are based on an expectation of order and consistency. Inferencing from

known to unknown particulars is a case of eduction; inferencing from known particulars to generalizations is an instance of induction.

2.2. INDUCTIVE INFERENCING IN FIRST LANGUAGE ACQUISITION

In *Psycholinguistics*, Kess (1992) explains that the conclusions reached through deductive inferencing, which is based on mathematical logic, are of the necessarily true type. Whereas, the conclusions reached through inductive inferencing, which is based on mental logic, are of the probably true type. Kess (1992, p. 193) cites work conducted with syllogisms and on discourse (Johnson-Laird, 1986; Moore, 1986; Lakoff, 1987) and concludes that "inferences derived from natural language are very often of the probably true instead of the necessarily true type."

Moore (1986, p. 52) uses several specific examples to argue "that deductive logics are too narrowly based to provide appropriate and revealing models of reasoning and inference in natural language; and . . . a better understanding of inductive inference is essential if linguists are to gain useful insight into natural language operation." Moore points out that deductive reasoning is based solely on the form of the argument, not on the meaning of the premises. Whereas, form cannot be separated from meaning with inductive reasoning. Moreover, "inductive logics accept uncertainty and indeterminacy,[1] which are primary characteristics of natural language" (Myers, Brown, & McGonigle, 1986, p. 3). Moore (1986, p. 53) offers the following examples to show the contrast

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[1] Note that the term "indeterminacy" as used here varies slightly from its use in SLA, where it has been defined as "the incomplete (or lack of) knowledge a learner has of parts of the second language grammar" (Gass & Selinker, 1994, p. 36). The focus is on the learner. It is implied that certain aspects of the grammar can potentially be complete or determinate; what is lacking is the learner's knowledge. As used here, the term refers to the inherent vagueness and indefiniteness of certain aspects of natural language; it may be impossible for these aspects to ever be determinate.

between inductive and deductive reasoning:

(2-1) Deductive
Premises: Every mammal has a heart.
A cat is a mammal.
Conclusion: A cat has a heart.
(2-2) Inductive
Premise: Every cat that has been examined has a heart.
Conclusion: Every cat has a heart.

Importantly, the conclusion of the deductive argument states nothing new. Whereas, the conclusion of the inductive argument, while uncertain, is innovative.

To support his view that inductive inference may "provide the more appropriate model . . . to explain how meaning emerges from the utterances of a language" (Moore, 1986, p. 65), Moore reanalyzes the work conducted by Luria in the 1930's in Uzbekistan. Of the 30 subjects in the study, 15 were schooled and 15 were non-schooled, "living in a backward economy based mainly on the raising of cotton. The kishlak (village) dwellers displayed remnants of a once-high culture together with virtually complete illiteracy, and also showed the pronounced influence of Islamic religion" (Luria, 1976, p. 13). Luria gave the subjects two kinds of syllogisms. The premises of one kind of syllogism contained information which was related to the subjects' experiences. For example:

(2-3) Cotton grows well where it is hot and dry.
England is cold and damp.
Can cotton grow there?

The premises of the other syllogisms contained information which was new to the subjects. For example:

(2-4) In the Far North, where there is snow, all bears are white.
Novaya Zemlya is in the Far North.
What colour are the bears there?

Luria concluded that the unschooled peasants refused to make deductive inferences from any of the syllogisms, while the subjects who had some schooling completed the deductive inference 'correctly.' Thus, "the acquisition of new modes of thought such as deductive inference depend on socio-historical development" (Moore, 1986, p. 58).

However, as mentioned, Moore reexamines Luria's study from a different perspective, arriving at a conclusion somewhat contradictory to that of Luria. Moore cites an exchange with one subject, Abdurakhm, age 37, non-literate, from a remote Kashyar village in Uzbekistan. When asked what color the bears in Novaya Zemlya are (2-4 above), Abdurakhm responded:

> We always speak only of what we see; we don't talk about what we haven't seen. . . . If a man was sixty or eighty and had seen a white bear and had told about it, he could be believed, but I've never seen one and hence I can't say. That's my last word. Those who saw can tell, and those who didn't see can't say anything.[2] (Moore, 1986, pp. 56-57)

Moore (1986, p. 57) points out that Abdurakhm's comment is a prime example of a conditional argument of *modus tollens*:

> If I could tell, I would have seen.
> I did not see.
> Therefore, I cannot tell.

This may take the logical form:

> If p, then q.
> Not q.
> Therefore, not p.

In other words, Abdurakhm is quite capable of deductive argument and inference. Moore (1986, pp. 58-60) contends "that deductive reasoning may not have the special 'advanced' status [Luria] accords it," and maintains that the primary difference between

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[2] Similarly, to syllogism 2-3, the non-schooled subjects responded that they had never been to England and therefore didn't know if cotton grew there.

the literate and non-literate is their ability to separate form from context, not in their cognitive capacity for deductive reasoning. While the words of the syllogism are "inert, inactive" for the literate, the non-literate are involved in "active, constructive processes" of reasoning and inference "to fill in gaps and establish links between frames of reference representing the subject's accumulated and categorized experience of the world."

Moore also cites the ethnographic work of Scribner (1977) to support the conclusion that across cultures the non-literate draw on their knowledge and experience of the world to arrive at a meaning (conclusion) of syllogisms. That is, they respond to the content rather than the form of the syllogism. Moore offers the following example from Scribner (1977, p. 487):

> If Sumo or Saki drink palm wine, the Town Chief gets vexed. Sumo is not drinking palm wine, Saki is. Is the Town Chief vexed?
> Kpelle farmer: The Town Chief was not vexed on that day.
> Investigator: What is the reason?
> Kpelle farmer: The reason is that the Town Chief does not love Sumo.
> Investigator: He doesn't love Sumo? Go on with the reason.
> Kpelle farmer: The reason is that Sumo's drinking means a hard time. That is why when he drinks palm wine, the Town Chief gets vexed. But when Saki drinks palm wine, he will not give a hard time to people. He goes to lie down and sleep. In that way people do not get vexed with him. But people who drink and go about fighting, the Town Chief cannot love them.

While this may be the 'wrong' logical conclusion, Moore concludes that the Kpelle farmer has reasoned "clearly." The farmer rejects one of the disjuncts of the major premise (if Saki drinks palm wine, the Town Chief gets vexed), and he adds information regarding the different effects of palm wine on Sumo and Saki. That is, "he declines to restrict himself to the 'closed' world of the deductive reasoning exercise; he interprets the premises inductively according to their content and its plausibility, not simply their form, and comes up with a response which, while lacking the certainty of a valid inference, is innovative" (Moore, 1986, p. 59).

It may be argued that reasoning exercises with syllogisms are not comparable to reasoning in natural language processing. However, Moore contends that the processes involved in the interpretation of anaphoric and deictic expressions show the close relation between inductive inferencing and natural language processing. Moore (1986, p. 61) offers the following example:

A: An alsatian bit me.
B: They are vicious beasts.

The referent of the anaphoric expression *they* cannot be interpreted with 100% certainty: *they* could possibly refer to the class of dogs, to the class of dogs with alsatians, or to a particular group of alsatians. In order to understand B's response as referring to the class of alsatians, A must use "a form of inductive reasoning which recognises that speaker B has linked the reported case with her general belief about the propensity of alsatians to attack without cause" (Moore, 1986, p. 61). Even though this belief may not be valid, A is aware of the common practice of generalizing from one instance to all instances. Therefore, A uses information which is not present in the exchange in order to resolve the anaphor. Moore (1986, p. 62) concludes that

> interpreting anaphoric expressions may require bringing to bear information not explicit in a text or exchange; the understander arrives at the most probable, rather than the 'correct,' interpretation of the anaphor. Both of these factors - the introduction of new information and the uncertainty associated with the conclusion - are . . . characteristics of inductive inferencing. . . . anaphoric expressions do not refer to elements in an utterance but to 'mental categories' that the hearer constructs as the utterance, in the course of being processed, connects with his or her existing frameworks of knowledge, belief and experience. On this view, the fact that the antecedent to an anaphoric expression cannot necessarily be identified with any degree of certainty does not constitute a problem. Indeed, the relation between an anaphoric expression and its antecedent may have to be induced. The conclusion reached is not formally valid but is the most plausible in the context given.

Moore also argues that understanding of deictic expressions requires inductive processes. As "a deictic word . . . takes some element of its meaning from the situation

(i.e., the speaker, the addressee, the time and place) of the utterance in which it is used" (Hurford & Heasley, 1983, p. 63), it requires the hearer/reader to bring "previous knowledge and experience of the situation in which the exchange takes place in order to arrive at the most probable interpretation" (Moore, 1986, p. 63). Hurford and Heasley (1983, pp. 64-65) illustrate "the flexibility with which deictic terms can be interpreted" with the verb *come*. If a speaker says *Come over there, please*, while pointing to a distant corner of a room, the hearer may "reasonably" inductively infer, but again without 100% certainty, that the speaker intends to move to that corner also. Additionally, *come* in this example is extended to include "toward where the speaker will be." (In contrast to the utterance *Can I come to your office?* spoken over the telephone. Here, the speaker plans to move to the present location of the hearer). In other words, deictic words may be considered "as cues enabling a hearer to use both context and other accumulated experience to construct a specific set of spatio-temporal relations" (Moore, 1986, p. 63).

Moore (1986, p. 64) concludes that "as a general rule, inductive reasoning in anaphora, deixis and natural language processing appears to be done informally, almost casually, on the basis of beliefs and impressions formed, with little if any reference to evidence." Given the fact that the inductive process, and its outcome, rely on one's previous knowledge and experience there is no standard technique of induction. One's inductive inferencing ability will be dependent, in part, on the subject matter and one's experience/knowledge of the subject.

Moore (1986, p. 64) notes that

> given [the] widespread dependence of natural language processing on inductive reasoning and inference, it is all the more odd that linguists should have almost invariably looked

> for models of reasoning and inference in deductive logics. It is possible that, as in the case of Chomsky's earlier borrowing of grammars of formal languages to be used in the formulation of grammars of natural languages, the reasons are in essence threefold: They were there, they were formally precise, and they were reasonably well-understood.

In sum, Moore has provided concrete examples and convincing arguments which illustrate the operation of inductive reasoning in natural language processing. Granted, Moore focuses specifically on adults deriving meaning from utterances of their native language. However, as discussed in Chapter 1, there have been suggestions for a role of induction in both first language acquisition (Saleemi) and SLA (Archibald). There is also additional support for the proposal that the cognitive ability of inductive reasoning may be involved, at various linguistic levels, in the acquisition of a second language.

2.3. INFERENCING IN SECOND LANGUAGE ACQUISITION

A role of inferencing in SLA is not new to the research agenda. Carton (1966) argued for the importance of this process in *The 'Method of Inference' in Foreign Language Study*[3] in which the focus was on the acquisition of morphemes and vocabulary.[4] He defined inferencing

> as requiring the scanning of what is already known by the learner in the establishment of new concepts. The process inherently requires linking of new material with what is already known. . . .
>
> Inferencing can add salience to novel stimulus configurations. By definition the salient features of the environment are ones we notice and remember. . . .

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[3] Carton does not distinguish between inductive and deductive inferencing. Later, I argue that his method of inferencing may be considered a case of induction.

[4] The influence of the times (i.e. Contrastive Analysis) is apparent in Carton's conceptualization of foreign language learning in that his process not only allows for a role of the L1 but also implies a comparing and contrasting of the L1 and L2. Importantly, however, this process is creative and not merely a behavioristic view of language learning; thus, it represents a signal of the changing times (e.g. Corder, 1967, 1983; Dulay & Burt, 1972, 1973, 1974a, 1974b; Kellerman, 1979, 1983, 1984, 1986). Carton's process could be integrated with (relatively) recent proposals of cross-linguistic influences in SLA. For example, the linking stage may depend in part on the learner's perception of the distance between the new material/L2 and the known material/L1 (Kellerman, 1979).

> On the other hand it is conceivable that some learning through inference occurs completely unnoticed. . . . This might occur when an unknown stimulus element[5] is embedded in what is otherwise a completely familiar and comprehensible context. (Carton, 1966, pp. 16-17)

Carton distinguishes between three types of information which may be sources of cues for making inferences: Intra-lingual cues, which are based on the target language; inter-lingual cues, which are based on the native language; and extra-lingual cues, which are based on content and/or context.

Carton proposed that inferencing consists of a multi-stage process. First, the learner scans what is already known in the L1, the L2, and/or 'world' knowledge. Second, new material is linked with what is known. Finally, new concepts and generalizations are established based on the (mis)match between the new material and what is already known. Thus,

> Stage 1: Scanning of what is known (either in L1, L2, or 'world' knowledge)
> Stage 2: Linking new materials with what is known
> Stage 3: Establishing new concepts or generalizations[6]

2.4. INDUCTIVE INFERENCING AND INDIRECT NEGATIVE EVIDENCE

A parallel can be drawn between the use of indirect negative evidence and Carton's multi-stage inferencing process. The operative principle of Chomsky's acquisition system relies on an inferencing process. Chomsky's domain of expectation can be assumed to be UG (or that which has already been acquired of the L1); this is analogous to Carton's known material. New material (L1 input) and known material (UG) must be scanned and linked. If what is known or expected fails to be instantiated

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[5] I would argue that an "unknown stimulus element" could be the absence of a structure in an "otherwise completely familiar and comprehensible context."

[6] Carton (1971, p. 48) later refines Stage 3, noting that inferencing "applies to the acquisition of a novel term-a novel fragment of language-and not to an unfamiliar concept."

in the new material, a selection (Carton's concept or generalization) would be chosen (established) which would exclude a certain structure in the grammar of the learner.

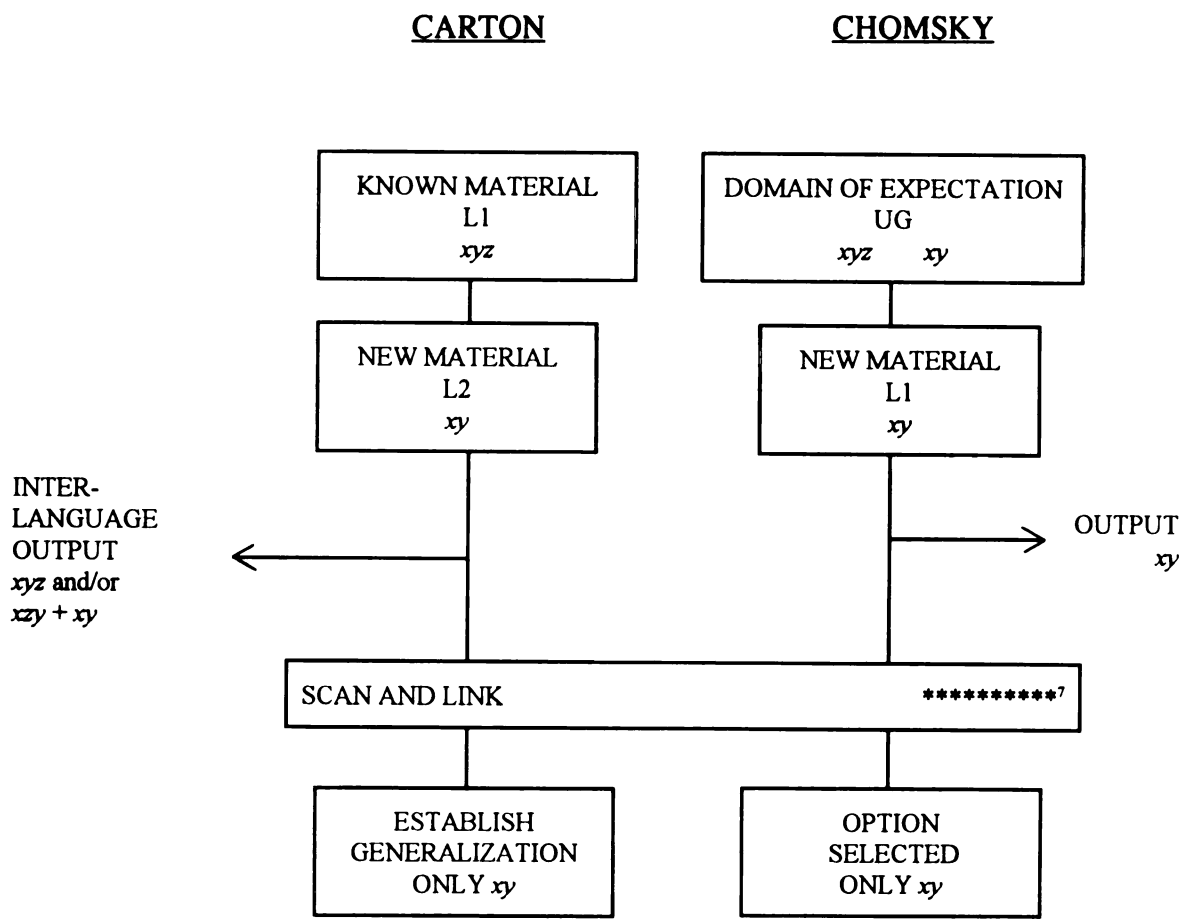

Figure 2.1. Inferencing and Indirect Negative Evidence

[7] Note that if *xy* output is produced before this process, the Learnability Problem remains. Positive evidence alone (*xy* input) will not inform the learner that *xyz* is impossible. Assuming no direct negative evidence, one must explain how *xyz* is eliminated from the grammar.

Chomsky does not elaborate on how expected structures would not be found; my argument is that this operative principle would necessarily involve a scanning and linking process. In other words, through the multi-stage process of inferencing, the learner links what is known/expected with new material, notices the absence of an expected structure in the new material, and therefore excludes this structure from her or his grammar. The similarities between Carton's method and Chomsky's operative principle can be schematized as in Figure 2.1.

The question remains whether the inferencing process described above is a case of deductive inference or ampliative inference. By definition, ampliative inferences are based on minimal evidence and the logic that connects the evidence to the generalization is questionable. The generalization or conclusion necessarily includes more information than what is available in the premises, or the input in the case of language acquisition. Second language learners can never be certain that they have received all of the information required to reach a necessarily true conclusion (see previous discussion of Valian's argument regarding the time limit problem), especially in light of the findings that negative evidence is either minimal and/or ignored. It therefore follows that second language learners are indeed not formulating generalizations based on deductive reasoning.[8]

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[8] That inductive reasoning plays a role in foreign language aptitude was suggested by Carroll as early as 1953. Carroll (1962 cited in 1981, p. 105) proposed that foreign language aptitude consists of four independent abilities, one of which is "inductive language learning ability–the ability to infer or induce the rules governing a set of language materials, given samples of language materials that permit such inferences." While I argue that inductive inferencing is a learning strategy which can be taught, Carroll (1981, p. 86) states: "I am in general sympathy with writers like Neufeld (1978) who want to emphasize that foreign language aptitude, whatever it is, is not fixed or innate. . . . I am simply neutral on this matter, since we do not have the kind of evidence that would enable us to decide it. . . . I have no hard evidence that would impel me to disagree with the idea that foreign language aptitude, considered as the individual's initial state of readiness and capacity for learning a foreign language, and probably degree of

What follows is justification for an investigation of the possible role of ampliative inferencing in the acquisition of the contrasts in 2-5 and 2-6 by native speakers of English learning French. In the context of this specific linguistic example, I argue that in order for the second language learner to reach the correct conclusion, the absence of expected material must be noticed and the process of inductive inferencing is a means to that end.

(2-5) Marie oublie souvent ses devoirs.
*Mary forgets often her homework.
(2-6) *Marie souvent oublie ses devoirs.
Mary often forgets her homework.

While both English and French allow SVOA, ASVO, and SAuxAdvV word orders, the languages differ in that only French allows SVAO order, and only English allows SAVO order.[9] Importantly, if one assumes lack of negative feedback, nothing in the French positive input informs learners that the SAVO order allowed in their native language (English) is disallowed in the target language (French). Utilizing Carton's inferencing process, four possible courses of action can be hypothesized:

1. Assume that the learner uses intra-lingual (L2) information to reach the generalization that only SVAO is possible. The only way to disconfirm this would be the presence of SAVO order in the L2. Can we assume that the learner who only uses SVAO has confirmed the generalization through noticing the absence of SAVO word order? In order to conclude that the learner has not progressed beyond Carton's stage

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facility in doing so, is crucially dependent upon past learning experiences. Yet, what evidence I have suggests that foreign language aptitude is *relatively* fixed over long periods . . . and relatively hard to modify in any significant way." The present research may provide further evidence to decide this issue.

[9] See Introduction, Footnote 2, for exceptions to this characterization.

1 and has only scanned what is known in the L2 (i.e., has reached a generalization based solely on positive input), it would be necessary to find a learner who has never used SAVO word order in French. This is highly unlikely.

2. Assume that the learner uses inter-lingual (L1) information and only uses SAVO word order. This learner has not advanced beyond stage 1. That is, the learner has not related the new material with what is known in the L1, and is relying solely on the L1.

3. Assume that the learner uses intra-lingual and inter-lingual information to form the generalization that both SAVO and SVAO word orders are possible in French. This generalization cannot be confirmed and can only be disconfirmed by the learner when she or he notices the absence of SAVO word order. We can assume that the learner who continues to use both SVAO and SAVO word order has not noticed the absence of SAVO in French.

4. Assume the learner uses intra-lingual and inter-lingual information, notices the absence of SAVO order in the L2 and comes to the generalization that only SVAO is possible. Importantly, given the implausibility of a learner exhibiting the interlanguage of #1, #4 learners would exhibit, for a period of time, the interlanguage of #3 before progressing to #4.

In order for the learner to 'switch' from SAVO to SVAO word order, the absence of SAVO word order in French must be noticed by the learner. While the absence of the structure may be noticed at Carton's stage 2, its absence must be noticed in order to disconfirm generalization #3 and thus progress to Carton's stage 3.

2.5. INDUCTIVE INFERENCING: A WORKING DEFINITION

Within the present context, inductive inferencing refers to a multi-stage comprehension (versus production) process which results in a probably true hypothesis. This process may be involved in the acquisition of the syntax, morphology, phonology, pragmatics, or semantics of a first or second language but is not reserved exclusively for the linguistic domain. In very general terms, following Carton, the process begins with scanning of what is known in the L1, L2, or world knowledge; in the second stage, new material is linked with known material; and in the third stage, a probably true hypothesis is formed.

Each of the stages may occur unconsciously, as would be the case in certain instances in L1 acquisition if one accepts the arguments presented earlier in this chapter and in Chapter 1 which claim that induction is the learning principle at the core of Chomsky's Indirect Negative Evidence. The process of inductive inferencing may also occur unconsciously among 'good' language learners, if one accepts the results of the research on learning strategies. Furthermore, certain stages of the process may be intentionally engaged in by second language learners (see discussion of 'Learning Strategies' below).[10] Importantly, known material in this process does not refer to that which can be explicitly articulated, although this possibility is not excluded.

It is important to note that each stage is dependent on the previous stage(s), and therefore, in a sense, each stage consists of multiple processes. Additionally, the processes at each stage are dependent on multiple variables. For example, as Gass (1988, 1994) proposes, factors such as frequency of input, prior knowledge, and affective

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[10] Intentionality, however, may not necessarily entail specific knowledge of the process.

variables may play a role in determining if the input becomes "apperceived input." Other factors may consist of the medium of presentation (oral, written) and the wide range of learner variables (learning style, maturational constraints, previous educational experience). At any point the process of inductive inferencing may break down, perhaps as a result of the aforementioned variables. Additionally, a learner may be strong in one aspect of the process (e.g., scanning L2 knowledge) and weak in another aspect (e.g., linking new material with L1 knowledge).

2.6. SUMMARY

To summarize the chapter thus far: Inductive reasoning/inferencing has been defined; specific examples of the use of induction in the processing of meaning in a first language have been given; a process of inferencing in SLA has been explained; it has been argued that this inferencing process is analogous to the use of INE, both of which involve the use of inductive inferencing. In other words, the implicit assumptions of Saleemi and Archibald (see Chapter 1) have been explicitly formulated and justified. Furthermore, it has been argued that the acquisition of the ungrammaticality of a specific linguistic structure may largely depend on the use of inductive inferencing, or INE. Finally, a working definition of inductive inferencing has been provided. Support for the proposal that this process may also be considered a strategy will now be provided.

2.7. LEARNING STRATEGIES

There is not yet complete agreement on the definitions and classification of learning strategies nor is there an understanding of the complex relationships between task-type, learner variables, and various strategies (Naiman, Frohlich, & Todesco, 1975; Bialystok, 1983, 1990; Wenden & Rubin, 1987; Oxford & Cohen, 1992; Gass &

Selinker, 1994). Oxford and Cohen (1992, p. 3) note that "serious conceptual and classificatory problems" exist in the domain of learning strategies. As reported by Gass and Selinker (1994, p. 266), there are unresolved issues of

> the criteria used for classifying language-learning strategies, whether such strategies are conscious or unconscious, the relationship to learning styles, and the difficulty of showing what contributes to language learning. Furthermore, Bialystok (1990) pointed out that it is difficult in practice to distinguish as strategic just learner behaviors that are clearly (1) concerned with problematic tasks, (2) conscious or unconscious, and (3) intentional or unintentional.

The lack of consensus on what should be included under the rubric of learning strategy is evidenced in the following sample definitions.

Drawing on Rigney (1978), Oxford and Crookall (1989. p. 404) offer a general definition of learning strategies as

> steps taken by the learner to aid in the acquisition, storage, and retrieval of information. . . . strategies can make learning more efficient and effective.

Rubin's (1987, p. 19) definition of learning strategies

> includes any set of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval and use of information (after O'Malley et al., 1983; and Brown et al., 1983). . . . [strategies are] the behaviors and thought processes that learners use in the *process* [italics in original] of learning, not those variables which may provide a background to learning success.

While Rubin excludes such background variables as psychological characteristics (e.g., learning styles), affective variables, and social style, Weinstein and Mayer (1986) maintain that learning strategies are intentional on the part of the learner (contrary to Seliger, 1983, 1984) and

> [learning strategies] can be defined as behaviors and thoughts that a learner engages in during learning and that are intended to influence the learner's encoding process. Thus, the goal of any particular learning strategy may be to affect the learner's motivational or affective state, or the way in which the learner selects, acquires, organizes, or integrates new knowledge. (Weinstein & Mayer, 1986, p. 315)

Focusing on communication strategies, Blum and Levenston (1978) used the

criterion of temporality to distinguish between strategies and processes. They defined strategies as "the way a learner arrives at a certain usage at a specific point in time" (p. 402). Repeated use of a strategy can lead to internal reorganization of a second language. This process is the "systematic series of steps by which the learner arrives at the same usage over time" (p. 402). According to Blum and Levenston's conceptualization, strategies may be either 'situation bound' (used only once), or they may 'initiate processes' (repeated use of the strategy).

Seliger (1984) also uses temporality, among other criteria, in distinguishing strategies from tactics, both of which are levels of processing in SLA.

> The first level of processing, strategy, is a biological, constant, learning process used by all human beings in all learning environments and consists of abstract unconscious formulation of cognitive questions in the form of hypotheses attempting to relate new material to already established cognitive structures. The second level of processing, tactic, consists of specific responses in specific learning environments. Some tactics (micro-tactics) provide data from which strategies may derive underlying principles or rules of the language system while other tactics (macro-tactics) do not engage the hypothesis-formation process at the level of strategy.[11] (Seliger, 1984, p. 47)

The position that temporality in addition to conscious awareness are characteristics distinguishing tactics from strategies is supported by Oxford and Cohen (1992).

> *Learning tactics* represent the short-term art of using *specific behaviors or devices* . . . to support one or more major learning strategies during day-to-day learning situations. *Learning strategy* is the long-range art of learning more easily and effectively by using *major clusters of behaviors* . . . (Oxford & Cohen, 1992, p. 4) [Italics in original]

Bialystok (1978, 1990) uses the criterion of optionality to distinguish strategies from processes.

> The idea originally motivating this criterion was that there is level of performance which is the inevitable, perhaps automatic, mental functioning of the linguistic system. These processes are carried out by a mental executive (some control structure that oversees all

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[11] Based on this definition, Seliger (1984, p. 41) maintains that "studies of 'good' language learners (Rubin, 1981) or introspective research (Cohen & Hosenfeld, 1981) will not provide insights into the level of strategy."

> performance) in response to the demands of the problem under the constraints of the system (including knowledge of the target language, knowledge of other languages. . .). . . . An additional construct is necessary only when the learner/performer intercedes in these usual processes to change the normal routine, and hence, the expected form of response. To this end, strategies are defined as supplementary activities that the learner can impose on the autonomous system to expedite achieving a goal. (1990, p. 19)

Faerch and Kasper (1983) propose that consciousness and problem-orientedness are the criteria which distinguish strategies in their model of language production. Their model consists of a planning phase and an execution phase, both of which involve separate processing steps. Strategies, however, are involved only in the planning phase and incorporated into the formation of a communicative plan only when a problem occurs.

Thus, strategies have been defined as having an affective and/or conceptual basis and may influence everything from the learning of simple tasks to more complex tasks such as language comprehension or language production.[12]

2.8. INDUCTIVE INFERENCING AS A LEARNING STRATEGY

While the principal goal of the present research is not to develop a learning strategy taxonomy or to propose a conclusive definition of strategy, results may provide insights into the concept of a learning strategy, and more specifically, into inductive inferencing's status in the classification scheme. The purpose of the following selective summary of the investigations into learning strategies is to justify the assumption that the process of inductive inferencing, as defined in this dissertation, is a learning strategy. The review will therefore focus on that research in which (inductive) inferencing has

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[12] Oxford & Cohen (1992, p. 17) attribute "the lack of concordance in strategy categories and concepts . . . [to] differences in research methodology, and research methodology is a reflection of researchers' goals. Some of the identifiable goals include: analyzing the causes of linguistic error, describing a good language learner, defining learning processes, and validating teaching methods."

been either explicitly defined or can be located within the descriptive schemes. Importantly, although diverse theoretical and methodological frameworks are adopted in this research, inductive inferencing has been identified as a learning strategy in SLA from the initial investigations in this area to the research presently being conducted.

Within SLA, research in learning strategies stemmed from attempts to identify the characteristics of 'good language learners' (Rubin, 1975, 1981, 1987; Stern, 1975; Naiman, Frohlich, Stern, & Todesco, 1978; Wesche, 1979) through self-reports, interviews, and observations.[13] Expanding on the work of Stern (1975), Naiman et al. (1978) identified five strategies, each of which was divided into sub-strategies, based on their interviews with successful language learners. The major strategies are:

1. Active Task Approach
2. Realization of language as a system
3. Realization of language as a means of communication and interaction
4. Management of affective demands
5. Monitoring of L2 performance

I would like to draw attention to the authors' descriptions of strategies 2 and 5. Learners who engage in strategy 2 refer back to their native language and make cross-lingual comparisons at different stages of language learning; additionally, they analyze the target language and make inferences about it. Learners who engage in strategy 5 constantly revise their interlanguage by monitoring their L2 and testing their inferences. In other words, from the earliest work in learning strategies, a multi-stage process of inductive

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[13] These characteristics of good language learners have in turn become one of the criteria by which strategies have been identified. One of the main problems with learning strategy research--that of causality--has been pointed out by Skehan (1989, p. 97): "One can . . . argue that learner strategies do not determine proficiency, *but are permitted by it* [italics in original]. The use of learner strategies, that is, may not lead to higher accomplishments--instead one of the benefits of higher proficiency may be the capacity to use a wider range of strategies." Additionally, as Gass and Selinker (1994, p. 266) point out, "poor learners may be lacking the verbal skills to report what they do as readily as good learners can. If so, then differences in reporting skills may be misinterpreted by analysts as differences in strategies used."

inferencing, while still nebulous, emerged: successful learners refer back to their NL (scan their background knowledge/domain of expectation), compare it with the L2 (link the L1 and L2), and make inferences (generalizations/select options).

Based on a compilation of research derived from self-reports and observations, Rubin[14] (1981) distinguished between cognitive strategies and processes[15] that directly affect learning and those that contribute indirectly to learning. Rubin's classification is as follows:

Processes that directly affect learning

1. Clarification/verification
2. Monitoring
3. Memorization
4. Guessing/inductive inferencing
5. Deductive reasoning
6. Practice

Processes that contribute indirectly to learning

1. Creates opportunities for practice
2. Production tricks

Of particular interest to the present context is Rubin's distinction between guessing/inductive inferencing and deductive reasoning. Rubin (1987) states:

> Guessing/inductive inferencing refers to strategies which use previously obtained linguistic or conceptual knowledge to derive explicit hypotheses about the linguistic form, semantic meaning or speaker's intention. . . .
>
> Deductive reasoning is a problem-solving strategy in which the learner looks for and uses general rules in approaching the foreign or second language. Here the learner uses previously acquired linguistic or conceptual knowledge to derive specific hypotheses about the linguistic form, semantic meaning or speaker's intention. The difference between inductive and deductive reasoning is that in inductive reasoning the learner is looking for a *specific* meaning or *specific* [italics in original] rule whereas in deductive reasoning the learner is looking for and using more general rules. (pp. 23-24)

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[14] Interestingly, Rubin (1987) credits the work of Carton (1966, 1971) as the impetus for her initial research into learning strategies.

[15] Rubin (1981, p. 118) defines "cognitive processes [as] those general category of actions which contribute *directly* [emphasis in original] to the learning process. Cognitive strategies are the specific actions which contribute directly to the learning process."

The contradiction between the definitions of inductive and deductive reasoning given in the beginning of this chapter (Trusted, 1979; Kess, 1992; Moore, 1986) and those given by Rubin are obvious. I would maintain that the distinction between the two is not the degree of specificity of the conclusion, or rule, but rather the degree of certainty of the conclusion. Rubin is mistaken in equating eduction (inferencing from known to unknown particulars) with induction and in equating induction (inferencing from known particulars to generalizations) with deduction. Unfortunately, it is precisely such variations in definitions which have resulted in the present "conceptual and classificatory problems" (Oxford & Cohen, 1992, p. 3) in the area of learning strategy research. Nonetheless, I would like to point out that all of the elements, while perhaps misclassified and misnamed, of an inductive inferencing process are present in Rubin's scheme.

Drawing on the work of Carton (1966, 1971), Stern (1975), and Rubin (1975), Bialystok (1978) created a model of second language learning which included four learning strategies; she then tested (Bialystok, 1979) the interactions proposed in the model (see below). Bialystok (1978, p. 71) listed four strategies, which are "optional means for exploiting available information to improve competence in a second language." Importantly, the strategies are defined in terms of purpose (formal or functional) and modality (oral or written), the assumption being that "the effects of the strategies are not generalizable; the effects, rather, are specific to the particular type of language for which they are used" (Bialystok, 1979, p. 372). The four strategies are:

1. Inferencing–the use of available information to derive explicit linguistic hypotheses. The information used for this purpose may be linguistic or non-linguistic, it may be taken from the speaker or from the environment, and it may relate to the structure or the

meaning of the language.[16] (1979, p. 376)

2. Monitoring--noting errors.
3. Formal practicing--the specific exercise of the language code for the sake of mastering the rule system. (1979, p. 374)
4. Functional practicing--the language learner increases his opportunity to use the language for communication by going to movies, reading books, or talking to native speakers. (1979, p. 374)

According to the model, the type of learning strategy which will be employed by the learner is dependent on the kind of knowledge that is required by the task. Three types of knowledge are proposed: Explicit Linguistic Knowledge (conscious, articulable facts), Implicit Linguistic Knowledge (intuitive information),[17] and Other Knowledge (knowledge of L1, world knowledge). Three sources of inferencing are possible: inferencing from Implicit Linguistic Knowledge, from Other Knowledge, and from Context, "the linguistic and physical aspects of a situation" (Bialystok, 1983, p. 107).

Importantly, Bialystok restricts Carton's original definition of inferencing to a

> strategy . . . employed primarily to derive meaning from the target language rather than to infer formal or structural features. Although formal aspects of the language, such as form class, may be exploited in inferencing, the product of inferencing is a representation of communicative meaning in the use of language, hence the strategy is functional. . . . the strategy may more appropriately be called "semantic inferencing." (1979, p. 376)

Furthermore, Bialystok proposes that the product of inferencing will always result in a form of explicit linguistic knowledge about the second language. In other words,

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[16] Bialystok (1983, pp. 105-107) offers the more general definition of inferencing as a strategy resulting in a hypothesis about the target language based on minimal evidence; furthermore, the logic that connects the evidence to the hypothesis is often questionable. As with Rubin, Bialystok refers to the hypothesis as a "deduction" even though her definition is of inductive inferencing, suggesting a lack of differentiation between induction and deduction. Again, I argue that a distinction between these two reasoning processes must be maintained.

[17] Implicit and Explicit Knowledge are distinguished based on function: "It is important to notice that the distinction between the two knowledge sources is defined in terms of function rather than content. Any information may possibly be represented in either source, and certainly different second language learners will vary greatly as a function of the nature and extent of the information found in each. A larger Implicit Linguistic Knowledge source is associated with an ability for greater fluency; a larger Explicit Linguistic Knowledge source is associated with extensive knowledge of formal aspects of the language but does not necessarily imply an ability to use this information effectively" (Bialystok, 1978, p. 73).

according to her model, the result of the inferencing process will always be conscious, articulable knowledge of the second language.

As stated above, Bialystok (1979) tested her model by administering strategy questionnaires and achievement tests[18] to students learning French as a second language. Bialystok concluded that functional practice had a stronger relationship with achievement than any of the other strategies, regardless of the task, and despite the fact that monitoring and inferencing were reported to have been used significantly more often than functional or formal practicing. However, as noted by Bialystok, these findings must be interpreted with caution given the possibility that the criterion test and/or the questionnaire may not have been adequate measurements of inferencing.

Given that "the diversity of activities subsumed by the general strategy 'inferencing' is large because of both the many possible types of information upon which an inference can be based and the many logical or deductive processes which can be used to generate inference" (Bialystok, 1983, p. 106), Bialystok's attempt to refine and restrict the definition of the strategy of inferencing is understandable.[19] However, the definition of inferencing assumed in this dissertation contrasts with Bialystok's in three major ways.

First, the definition assumed here does not exclude the possibility that the inferencing process may result in intuitive (Implicit, in Bialystok's terms) linguistic knowledge. This assumption is supported by the theoretical arguments, presented in

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[18] Standardized I.E.A. (International Association for the Evaluation of Educational Achievement) Tests were adapted for three of the four tests given. The four tests were designed along the purpose and modality parameters: formal/oral (decide the correctness of a spoken sentence), formal/written (fill in the blank with an appropriate form on isolated sentences), functional/oral (listening for comprehension), functional/written (reading for meaning).

[19] Her choice of restricting inferencing to a comprehension, functional strategy may in part be due to her concentration on the area of reading.

Chapter 1 and the beginning of this chapter, suggesting that inductive inferencing (or INE) plays a role in the acquisition of (the intuitive knowledge of) a first and/or second language. One of the implications of Bialystok's claims that "the conversational use of language proceeds perfectly well from an intuitive source" (1983, p. 108) and that inferencing does not result in intuitive knowledge, would therefore be that inferencing may never be used in language acquisition. This seems to be a rather drastic consequence of her model. In light of these arguments, it would seem that an explanation is needed of why the result of inferencing is always in the form of conscious, explicit linguistic knowledge; that is, what is to be gained by positing such a restriction? Given that no substantive arguments are provided for this position and that arguments in support of 'inferencing to intuitive knowledge' are offered, the present definition includes the possibility that the inferencing process results in intuitive knowledge.

Second, Bialystok's model excludes the possibility of Explicit Linguistic Knowledge (of either the L1 or the L2) as a possible source of inferencing. The definition assumed here does not exclude this information as an inferencing source. There is a slight contradiction in Bialystok's scheme: "Other Knowledge refers to information about languages other than the target language, especially the native language, as well as the learner's general knowledge of the world. . . . Part of Other Knowledge is the learner's metalinguistic knowledge of language in general" (1983, pp. 106-107, p. 109). Therefore, Other Knowledge may include explicit knowledge about other languages, and yet, according to Bialystok, while Other Knowledge is a source of

inferencing, explicit linguistic knowledge is not.[20]

Additionally, Bialystok (1983, p. 107) offers the following example of inferencing from implicit knowledge:

> A learner of English as a second language can exploit the morphological information that the ending *-ly* signals an adverb, the ending *-or* refers to an agent, and the ending *-tion* is a cluster indicating a noun and is pronounced in a certain way.

Once the "regularity [is] abstracted from intuitive information [and] explicated, [it then] is accumulated for Explicit Knowledge, the source of analyzed linguistic knowledge" (Bialystok, 1983, p. 107). Are we to assume then that once regularities have been abstracted and explicated they somehow lose their ability to function as sources of inferences?

These inconsistencies and contradictions would be resolved if one assumes that explicit linguistic knowledge may be used as a source of inferencing. Again, no explanation is given of <u>why</u> explicit linguistic knowledge cannot be used to make inferences about unknown or unfamiliar material; or, what is to be gained by excluding it as a possible inferencing source?

Third, contrary to Bialystok, the process of inferencing assumed in this dissertation is not restricted to semantic inferencing. According to Bialystok, syntax, morphology, or phonology may be used only "to derive meaning from the target language rather than to infer formal or structural features" (1979, p. 376). It seems incongruous that formal, and only intuitive, aspects of the L1 or the L2 are used to infer only explicitly functional aspects of the L2. Again, we are offered no explanation of

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[20] Additionally, this description of the knowledge sources implies that explicit L1 knowledge and explicit L2 knowledge are somehow different forms of knowledge; this seems to be an unjustified distinction.

why inferencing must be limited to the semantics of language or what is to be gained by such a limitation.

In sum, while an attempt to refine the definition of the inferencing strategy is desirable, Bialystok's restrictions of the strategy are unmotivated and unjustified. The claims that the strategy of inferencing 1) always results in conscious, articulable facts; 2) never uses conscious, formal knowledge of a language as a source; and 3) is restricted to a semantic, functional purpose are unsubstantiated. The present purpose is not to develop the concept/role of inferencing within Bialystok's framework, but rather to explain how the present use of the term differs from her conceptualization and to highlight the fact that inductive inferencing (see Footnote 15, Bialystok's definition 1983, pp. 105-106) plays an essential role in her model of second language learning.[21]

Based primarily on the work of Anderson (1983, 1985) and on their research conducted within an information-processing framework, O'Malley et al. (1985a, 1985b) and O'Malley and Chamot (1990) attempt to integrate SLA and learning strategies into an information-processing theory of cognition. According to O'Malley, Chamot, and Walker (1987, p. 290), "language can best be understood as a complex cognitive skill, and that mental processes involved in language parallel the processes used with other cognitive skills."

Based on interviews and observations, O'Malley and Chamot (1990, p. 1)

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[21] In Bialystok and Ryan (1985a, 1985b) and Bialystok (1990), the model has been revised: "The framework is generated by identifying as independent constituents of cognition the two skills associated with structuring knowledge and accessing knowledge. . . . and are referred to, respectively, as the dimensions for analyzed knowledge and for cognitive control" (Bialystok & Ryan, 1985a, p. 232). Analyzed/unanalyzed knowledge is roughly equivalent to the implicit/explicit distinction made in the model reviewed here. Because the inferencing strategy is not explicitly dealt with in the more recent cognitive framework, this framework will not be covered here.

distinguish between three types of learning strategies, which are "special ways of processing information that enhance comprehension, learning, or retention of the information," depending on the type or level of processing involved. Their relatively detailed inventory, adopted from cognitive psychology (Brown & Palinscar, 1982), is as follows:

Metacognitive Strategies: Higher order executive skills which may apply to a variety of receptive or productive language learning tasks.

Selective attention	Focusing on special aspects of learning tasks, as in planning to listen for key words or phrases.
Planning	Planning for the organization of either written or spoken discourse.
Monitoring	Reviewing attention to a task, comprehension of information that should be remembered, or production while it is occurring.
Evaluation	Checking comprehension after completion of a receptive language activity, or evaluating language production after it has taken place.

Cognitive Strategies: Operate directly on incoming information, manipulating it in ways that enhance learning. . . . Cognitive strategies may be limited in application to the specific type of task in the learning activity.

Rehearsal	Repeating the names of items or objects to be remembered.
Organization	Grouping and classifying words, terminology, or concepts according to their semantic or syntactic attributes.
Inferencing	Using information in text to guess meanings of new linguistic items, predict outcomes, or complete missing parts.
Summarizing	Intermittently synthesizing what one has heard to ensure the information has been retained.
Deducing	Applying rules to the understanding of language.
Imagery	Using visual images (either generated or actual) to understand and remember new verbal information.
Transfer	Using known linguistic information to facilitate a new learning task.
Elaboration	Linking ideas contained in new information, integrating new ideas with known information.

Social/Affective Strategies: Represent a broad grouping that involves either interaction with another person or ideational control over affect. Generally, they are considered applicable to a wide variety of tasks.

Cooperation	Working with peers to solve a problem, pool information, check notes, or get feedback on a learning activity.

Questioning for clarification	Eliciting from a teacher or peer additional explanation, rephrasing, or examples.
Self-talk	Using mental redirection or thinking to assure oneself that a learning activity will be successful or to reduce anxiety about a task.

(O'Malley & Chamot, 1990, pp. 44-46)

While a computer-based metaphor of cognition is not being adopted in this dissertation, inductive inferencing as defined earlier in this chapter may be utilized within such a model. The process of inductive inferencing would involve multiple strategies which O'Malley and Chamot classify as Cognitive: inferencing, transfer, and elaboration. Recall Carton's *Method of Inference* which provides the foundation of the present definition:

1. Scan what is known in the L1, the L2, and/or world knowledge.
2. Link new material with what is known.
3. Establish new generalizations.

Stage 1 is roughly analogous to O'Malley and Chamot's transfer; that is, known linguistic information is used. Stage 2 would fall under elaboration, the linking and integrating of new and known material.[22] Stage 3 consists of, in part, O'Malley and Chamot's inferencing; although a slight modification in their definition is in order. The authors seem to be limiting inferencing, as Bialystok does, to semantics ("guess meanings . . . predict outcomes . . ." 1990, p. 44). As argued previously, I maintain that inferencing need not be restricted to the domain of semantics. Additionally, included in O'Malley and Chamot's (1990, p. 44) definition is "complete missing parts." As discussed in the section "Inductive Inferencing: A Working Definition," I maintain that these missing parts (which may include syntactic structures) may be noticed during the

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[22] However, O'Malley and Chamot do not elaborate on whether the term "ideas" includes linguistic information. Additionally, it would seem that "organization" would be a necessary precursor to any kind of "elaboration."

linking/elaboration stage, and rather than being completed through inferencing, they may be used to establish new probably true generalizations regarding the syntax of the new information. In other words, O'Malley and Chamot's itemization of strategies does not allow for learning through induction.

In addition to the present definition of the stages of inductive inferencing lending themselves, in part, to application within an information-processing framework, the possibility that this process or strategy may be both conscious and unconscious is supported within this model of cognitive theory:

> Research on learning strategies is based on the assertion that strategies begin as declarative knowledge that can become proceduralized with practice and, like complex cognitive skills, proceed through the cognitive, associative, and autonomous stages of learning. At the cognitive stage, the strategy application is still based on declarative knowledge, requires processing in short term memory, and is not performed automatically. The student may have a firm recollection of using the strategy with a specific task. . . . However, if the strategy application has become proceduralized and the strategy use is performed automatically, the student may not be aware of using the strategy. (O'Malley & Chamot, 1990, p. 85)

In an attempt to resolve some of the "conceptual and classificatory problems" (Oxford & Cohen, 1992, p. 3) within learning research, Oxford and Cohen (1992, p. 7) suggest developing "a smaller number of broad strategies with their related tactics listed underneath each strategy." Based on the research to date which utilizes interviews, journals, observations, surveys, introspection, retrospection, and factor analytic studies, they (1992, pp. 7-9) list seven general strategies: 1) forming concepts and hypotheses; 2) testing hypotheses; 3) personalizing mental linkages; 4) embedding new material in long-term memory; 5) understanding one's affective state; 6) managing one's learning process; and 7) producing oral or written language while lacking adequate linguistic

knowledge.[23] Relevant to the present discussion is their first strategy.

> 1. Strategy = forming concepts and hypotheses (building declarative knowledge) Tactics = simplifying through transfer, simplifying through overgeneralization; using inferencing to figure out the meaning in the absence of adequate vocabulary and grammar; categorizing, comparing, contrasting, hierarchically organizing, analyzing, reasoning deductively, abstracting, creating networks, propositions, and schemata (conceptual frameworks). (Oxford & Cohen, 1992, p. 7)

Stage 1 of the present definition of inductive inferencing, scanning known material, and stage 2, linking known material with new material, are not specifically itemized as tactics within Oxford and Cohen's organization of learning strategies and tactics. Presumably these stages would fall under the tactics of "simplifying through transfer," "comparing," "contrasting," and "creating networks." That these stages can be considered integral to a learning strategy is reflected in Oxford and Cohen's (1992, p. 9) "assumption #3: learning strategies can aid learners in making initial links between new material and stored information, strengthening existing links, and retrieving information through declarative networks when needed (Mayer, 1988)."

According to Oxford and Cohen's scheme, the final stage of the present working definition of inductive inferencing (establishing new generalizations) would be a strategy and the steps leading to this result would be classified as either tactics or assumptions. Additionally, as with O'Malley and Chamot and Bialystok (and contrary to the present assumption/definition), Oxford and Cohen (1992, p. 7) seem to limit inferencing (a tactic) to semantics--"using inferencing to figure out the meaning in the absence of adequate vocabulary and grammar." Importantly, forming concepts and hypotheses

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[23] Vague areas still remain, however. Oxford and Cohen (1992, p. 8) list the tactic of "looking for the organizing principle" under the strategy of "managing one's learning process." It is not clear how this tactic is distinguished from several of those listed under the strategy of forming concepts and hypotheses: categorizing and hierarchically organizing.

through induction is not explicitly referred to in their organization. However, one could argue that the tactic of "simplifying through overgeneralization" is a necessary aspect of induction.

Regarding the issue of conscious awareness as an essential feature of a learning strategy, Oxford and Cohen (1992, pp. 11-12) "assert that language learning strategies are indeed conscious behaviors undertaken to improve language learning. . . . If a learner's behavior is totally unconscious, then it would simply be referred to as a process, not a strategy." It is important to note that the authors do not rule out the possibility that the same actions or behaviors are a strategy if performed consciously by one learner and yet are also a process if performed unconsciously by another learner. This characterization of a learning strategy does not oppose the present working definition of inductive inferencing.

This cursory review of the learning strategy research supports the assumption that inductive inferencing as defined in this dissertation may be considered a learning strategy/process. It may be that inductive inferencing is indeed a combination of several strategies and processes: Naiman et al.'s (1978) realization of language as a system and monitoring of L2 performance; Rubin's (1981) guessing/inductive inferencing and deductive reasoning; Bialystok's (1978) inferencing; O'Malley and Chamot's (1990) cognitive strategies of transfer, organization, elaboration, and inferencing, or Oxford and Cohen's (1992) strategy and related tactics of forming concepts and hypotheses.

While variations in terminology, classification, and essential characteristics of learning strategies continue, the stages of inductive inferencing outlined here have been identified within the various classifications and conceptualizations. Additionally, the

similarities and differences between the definitions offered by these frameworks and the present definition have been described.

2.9. TEACHING OF LEARNING STRATEGIES

As highlighted in the previous section, "there is no complete agreement on exactly what strategies are; how many strategies exist; how they should be defined, demarcated, and categorized" (Oxford, 1990, p. 17). However, "despite problems in classifying strategies, research continues to prove that strategies help learners take control of their learning and become more proficient . . ." (Oxford, 1990, p. 22).[24] Based on this assumption -- that language learning strategies can improve the development of language skills -- research has been directed toward the teachability of strategies.

In this section, I summarize some of the major studies which have investigated the effectiveness of teaching learning strategies. I then discuss some of the issues yet to be resolved which are reflected in the summarized studies and explain how the present research may address some of these issues.

Early research in learning strategy instruction focused on the training of just one or two strategies. One set of studies concentrated on associative memory strategies for acquisition of new vocabulary. Paivio and Desrochers (1979) found that the pegword, or hook, method (a list of memorized cue words is used to learn vocabulary or

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[24] However, Gass and Selinker (1994, p. 267) maintain that one of the major obstacles still to be surmounted is to determine if a given strategy actually facilitates second language acquisition for all language learners: "Finally, suppose we can show that good language learners do X, that X is strategic, and that X in fact does contribute to their language learning. Logically, it does not follow that if X is then taught to a poor language learner, it will *necessarily* [emphasis in original] lead to language improvement. It is not impossible, of course, that the teaching of that X may in fact lead to language improvement. But the point is that it does not logically follow that it will. What is needed is research that shows that the strategy under consideration, if used by a so-called bad language learner, does indeed improve the latter's consistent performance, thus making the IL more target-like."

grammatical categories) aided English-speaking subjects in the recall of new French vocabulary. The keyword method (new words are learned through a combination of auditory and imagery links) has been reported as successful for recalling German vocabulary (Ott et al., 1973; Desrochers et al., 1989), Spanish vocabulary (Raugh & Atkinson, 1975), and Russian vocabulary (Atkinson & Raugh, 1975). Cohen and Aphek (1980, 1981) conducted a study in which English-speaking students of Hebrew were taught how to use associations[25] to learn new vocabulary. The students then generated their own paired associations. The authors found that students reported using their self-generated associations in order to recall words and "that their performance was better when using this retrieval strategy than when they used a new association or used no association at all" (Cohen & Aphek, 1980, p. 229).

Bialystok (1983) investigated the teaching of the strategy of inferencing in the context of reading comprehension.[26] The working assumption was that inferences are "tentative propositions of meaning . . . The hypothesis [was] that providing information that could potentially form a basis of meaningful inferences [would] improve the reader's ability to understand the text" (Bialystok, 1983, p. 114).

The subjects in the study were English-speaking high school students learning French as a second language. "Four cue conditions were created and examined for their effects on the learners' ability to understand the general meaning of a passage and on

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[25] Associations included, among others, sound, meaning, image, number of letters in word, and context.

[26] Hosenfeld et al. (1981) taught reading strategies to high school students of French. Because no assessment of the effectiveness of the strategies taught, or of an increase in strategy use, was provided, this study will not be reviewed here.

their ability to translate difficult lexical items in the passage" (Bialystok, 1983, p. 114). The four conditions were as follows: 1) students were given a picture which summarized the main point of the reading passage;[27] 2) students were given dictionaries which contained all the difficult words in the passage, in addition to several distractors; 3) students were given 15 minute lessons on how to inference by using target and native language information (prefixes, suffixes, cognates) and contextual information; and 4) students in this group received no cues.

After reading the passages in one of the four cue conditions, students were given two tests in English. The first test consisted of short-answer questions on the meaning of the passage; the second test contained difficult vocabulary items which the students were asked to translate into English. Bialystok (1983, p. 116) found that 1) all subjects performed better on the comprehension test, and 2) "the picture improved performance on the comprehension test only and the dictionary and lesson improved performance on both the comprehension and the vocabulary tests."

The study was replicated with another four groups of students and somewhat different results were obtained. Performance on the comprehension test was better for the picture cue group, rather than being equally effective as in the first study.[28] Additionally, performance on the vocabulary test improved only in the dictionary cue

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[27] This can be equated with Carton's extra-lingual or contextual cue.

[28] Bialystok notes that this may due to the fact that in the first study the picture cue group was the lowest achieving academically. In other words, if they had been more competent initially, their comprehension scores might have surpassed those of the other groups in the first study also.

group; it did not improve for the lesson cue group.[29]

Bialystok (1983, p. 121) concluded:

> The results of the present study suggest that the deliberate provision of different kinds of contextual information and instruction in inferencing techniques are pedagogically expedient in second language reading comprehension. The lesson provided subjects with a heuristic device for dealing with difficult information; stable long-term effects of this instruction were neither measured nor expected. . . . students were able to understand the techniques described in the presentation and to apply them to similar material on their own.

The largest learning strategy research agenda has been put forth by O'Malley, Chamot, and their associates.[30] In addition to developing the Cognitive Academic Language Learning Approach (CALLA) instructional model which is designed to integrate learning strategy training, content topics, and academic language development for adolescent ESL students, these researchers have set out to address the following issues: 1) the effectiveness of strategy training on the integrated tasks of speaking and listening; 2) strategy training performed by teachers versus researchers; 3) the training of a combination of strategies; and 4) the transferability of strategies across tasks. One comprehensive, representative study (O'Malley et al., 1985b) which relates to the present discussion will be reviewed here.

The goal of this study was to determine if combinations of learning strategies would facilitate performance in speaking, listening, and vocabulary acquisition. Subjects

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[29] Bialystok attributes this to the fact that the lesson, by necessity, was altered somewhat; it was shorter and given to a larger group of students; thus, the lesson was more in the form of a lecture rather than class participation.

[30] Other learning strategy studies which are peripheral to the present discussion and therefore won't be summarized here include, among others: Chamot and Küpper (1989) investigated the effects of teacher interest, techniques, and ability to motivate students on the success of learning strategy training. A series of studies by Chamot and O'Malley (1986, 1987), which are part of the Foreign Language Course Development Study, are designed to 1) determine whether and how foreign language teachers incorporate learning strategy instruction into the classroom, and 2) utilize teachers' knowledge of student attitude and course objectives to incorporate learning strategy instruction into a curriculum.

in the study were intermediate-level adolescent ESL students (one-third Hispanic, one-third Asian, and one-third other ethnicities). Students were assigned to one of three treatment groups. Group 1 received instruction in metacognitive, cognitive, and social/affective strategies. Group 2 received instruction in cognitive and social/affective strategies. Group 3, the control group, did not receive any learning strategy instruction.

50 minutes a day for eight days, students received instruction and practice in using learning strategies. Explicit directions for strategy use were faded out over the training period. Each day students practiced two of the three skill areas (listening, speaking, vocabulary). The same strategies were always presented with a given skill area, although the tasks in each skill changed. Listed below are the language activities and accompanying learning strategies (O'Malley & Chamot, 1990, p. 173).

Language Task	Strategy Type	Strategy
Vocabulary (word lists)	Metacognitive	Self-evaluation
	Cognitive	Imagery and grouping
	Social/affective	None
Listening (5-minute lecture on an academic topic)	Metacognitive	Selective attention
	Cognitive	Note taking
	Social/affective	Cooperation
Speaking (2-minute presentation on a familiar topic)	Metacognitive	Functional planning
	Cognitive	None
	Social/affective	Cooperation

An example of how the strategies were integrated into the tasks is as follows:

> Vocabulary: Students were presented with ten-item word lists comprised of tangible items and encouraged to *group* the words based on meaningful classifications as they studied them and to *imagine* themselves interacting with the object while using its name. After a 5-minute study period, students were tested for recall. Students were then given the opportunity to review their tests and were encouraged to analyze which strategies worked, which didn't work, and why. (O'Malley & Chamot, 1990, p. 173)

Students were pretested, posttested, and given four daily tests in the three skill

areas. A multiple choice listening test was designed to assess students' recall of information from a 5-minute videotape on academic topics. "The speaking test consisted of ratings on a two-minute speech on one of three topics: a personal experience, their own culture, or an academic subject. Students were given time to prepare the talks and then tape recorded the talk before a small group of students. The tapes were scored blind by a panel of judges who rated the talks on delivery, appropriateness, accuracy, and organization" (O'Malley, 1987, p. 135). The vocabulary test consisted of multiple choice items and fill-in-the-blank.

Results of the speaking task indicated that the metacognitive group scored higher than the cognitive group, which scored higher than the control group. On the listening[31] and vocabulary tests, no significant difference was found among groups. Interestingly, on the vocabulary test, ethnic differences in strategy use were found. Asians in the control group outperformed Asians in the training groups, while Hispanics in the training groups outperformed Hispanics in the control group. Teachers reported that Asian students resisted the strategy training.[32]

O'Malley and Chamot (1990, p. 175) conclude that

> this study demonstrated that strategy training can be effective in a natural classroom environment with integrative language tasks such as speaking and listening, although it suggests that training effectiveness depends on the difficulty of the materials or the rate at which cues for strategy use are faded over time. The fact that the language tasks on which the strategies proved effective were academic language skills suggests that this type of training has promise for improving the learning ability of minority language students.

Aside from the caveats that are a part of any study (e.g., the reliability and

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[31] The authors suggest that this finding may be a result of the material being too difficult, decreased interest in the material, and/or the fading of the directions for strategy use.

[32] This finding agrees with ethnic differences in strategy use reported by Politzer (1983).

validity of testing instruments, the effects of individual learner variables), the two studies just summarized are based on assumptions which may need to be reexamined. In both studies the researchers taught very explicit procedures which were assumed to be strategies/tactics, which in turn were assumed to facilitate performance in a specific skill area. For example, the picture cue in the Bialystok (1983) study was assumed to provide contextual information which would engage an inferencing strategy; the use of this strategy would then be reflected in higher performance on a comprehension test. It could be that the picture cue group did not use inferencing at all. Rather, the picture simply supplied the students with the necessary information. Similarly, given the tenuous results in the O'Malley et al. (1985b) study, a justifiable question would be: Were the strategies taught actually related to or necessary for improved performance on the skill in question? These strategies were associated with these language tasks based on previous studies in which information was collected through interviews and observations (O'Malley et al., 1985a) and survey questionnaires (Bialystok, 1979). Therefore, that the problems with initially identifying strategies may transfer to and complicate subsequent research is exemplified.

A more global approach is taken in the present research[33] as a result of the possibility that specificity of the strategy/tactic is not appropriate to or does not target the skill area in question. In other words, the assumption of the present research is that improvement in the general cognitive ability or strategy of inductive inferencing will be utilized in the linguistic domain. This assumption is supported by McCawley (1983, p.

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[33] While methodology is briefly mentioned here, detailed descriptions of the research design will be reserved for Chapter 3.

180):

> I reject the remarkably popular non-sequitur that has taken many linguists from the quite reasonable proposition that there are innate mechanisms specific to the acquisition of language to the much less plausible proposition that general purpose learning mechanisms play no role in language acquisition. If there are such things as general purpose learning faculties, it is bizarre to suppose that they shut off when language is being acquired. Language involves not only specifically linguistic units and relations but also factors that play a role in many cognitive domains.

The fact that some students seemed to resist the strategy training in the O'Malley et al (1985b) study underscores the issue of whether strategy instruction should be direct (students are informed of the purpose of the strategy) or embedded (students are not informed of the purpose of the materials, which are designed to elicit strategy use). As a corollary of the global approach adopted here and to avoid the possibility of student resistance, embedded learning strategy instruction was utilized in the present research.[34]

As summarized above, all previous studies have focused on vocabulary acquisition, speaking, or listening and reading comprehension. In reviewing the memory training studies on vocabulary acquisition, Thompson (1987) points out a number of difficulties with the techniques used in the vocabulary studies. Among those she cites are: it has not been shown that the devices aid in the acquisition of meaningful information; more effort is sometimes required on the part of the student to learn the associated relationships than simply to learn the words by rote; and pronunciation difficulties may hinder mnemonic techniques. An attempt to teach strategies for the integrated skills (that is, meaningful information) of speaking, listening, and reading has also proved to be problematic. In the Bialystok (1983) study, it is implied that the reading passage was too difficult for the first picture cue group. In the O'Malley et al

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[34] Additionally, direct strategy instruction requires teacher training, which was impossible to implement in the present study.

(1985b) study, the authors attribute a portion of their findings to the possibility that the listening task was too difficult. In other words, extraneous variables associated with the multiple demands of the task have entered into these studies obscuring both the use of a strategy and the effectiveness of the training of a specific strategy. Therefore, in the present study one specific syntactic structure is isolated for investigation, and the effect of the teaching of a specific strategy, inductive inferencing, on the acquisition of the ungrammaticality of that structure is examined.

Finally, in all of the studies to date the long-term effects of strategy training have not been investigated; single post-tests have been administered immediately following instructional periods. The present study attempts to examine the (relatively) long-term effects of strategy instruction by posttesting subjects twice -- immediately after instruction and again three weeks later.

In this section I have summarized some of the studies which have investigated the effectiveness of teaching various learning strategies. While these studies leave many questions unanswered, their results indicate that attempts at strategy instruction need not be abandoned. I have highlighted three of the unresolved issues (the global nature of learning strategies, the effect of strategy instruction on the acquisition of syntax, and the long-term effects of strategy instruction) in the learning strategy research and suggested that the present research may provide some insights into these issues.

2.10. CHAPTER SUMMARY

In this chapter, a definition of inductive inferencing from the fields of philosophy and psycholinguistics has been given. Specific examples of the use of induction in the processing of meaning in a first language have been described. A process of inferencing

in SLA and its similarity to the use of Indirect Negative Evidence have been explained. It has been argued that the acquisition of the ungrammaticality of a specific syntactic structure depends on the use of inductive inferencing. Learning strategy research in SLA has been reviewed in the context of the working definition of inductive inferencing used in this study. Finally, a selective summary of the research investigating the teaching of learning strategies has been provided. Issues which remain problematic in this research area have been indicated. The present research, which is designed, in part, to address these issues, is described in Chapter 3.

CHAPTER 3
METHODOLOGY

I begin this chapter with a general overview of the research design and procedures. I then provide biographical sketches of the volunteers who took part in the study. The majority of the chapter is devoted to detailed descriptions of and justifications for the testing and instructional materials which were used.

The objective of the present research, which was discussed in Chapter Two, is to investigate the possible role of inductive inferencing in the acquisition of the contrasts in 3-1 and 3-2 by native speakers of English learning French.

(3-1) Marie oublie souvent ses devoirs.
*Mary forgets often her homework.
(3-2) *Marie souvent oublie ses devoirs.
Mary often forgets her homework.

While both English and French allow Subject-Verb-Object-Adverb (SVOA), Adverb-Subject-Verb-Object (ASVO), and Subject-Auxiliary-Adverb-Verb(SAuxAV) word orders, the languages differ in that only French allows Subject-Verb-Adverb-Object (SVAO) order, and only English allows Subject-Adverb-Verb-Object (SAVO) order.[1] Importantly, if one assumes lack of negative feedback, nothing in the French positive input informs learners that the SAVO order allowed in their native language (English) is disallowed in the target language (French).

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[1] See Introduction, Footnote 2, for exceptions to this characterization.

3.1. PROCEDURES OVERVIEW

All volunteers took three pretests. One test was a Word Order Correction Task, which was in the form of a cartoon story. Students were asked to correct those sentences which were incorrect. The second test was an Acceptability Judgment Task,[2] which contained pairs of sentences, and students were asked to decide whether both sentences were correct, both sentences were incorrect, only one sentence was correct, or they did not know. The Word Order Correction and Acceptability Judgment Tasks were designed to test students' knowledge[3] of adverb placement in French. Test sentences contained adverbs of frequency or manner and lexical verbs (no auxiliaries) in the present tense. The third test was Raven's Standard Progressive Matrices, which is a non-verbal test of inductive reasoning. Problems are presented in abstract figures/designs and combine elements of analogies, series completions, and classifications. Students were allowed unlimited time to complete all tasks. The order in which tests were taken was alternated both within a testing session and for each student.

Subjects were divided into two groups based on class section. Teachers were asked not to correct students with respect to adverbs, nor were they to teach students the rule of adverb placement. For a two week period (8 days) in Group 1, which I will refer to as the noninferencing group, the teachers' regular lessons were altered so that,

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[2] The terms grammaticality judgment, acceptability judgment, and preference are often used interchangeably. However, as Birdsong (1989, p. 73) highlights in citing Newmeyer (1983, p. 51), "grammaticality . . . is a theoretical construct, it is not directly accessible to the intuitions of the speaker of the language . . . The feelings speakers have about the well-formedness of sentences in their language are referred to by the term acceptability." Thus, as Gass (1994, p. 303) points out, grammaticality is inferred through the use of acceptability judgments. In this dissertation, the terminology is used in its strictest sense.

[3] The subject of "knowledge" is discussed later in the chapter in the sections "Acceptability Judgments" and "Testing Materials."

wherever possible, the exercises contained adverbs. I refer to this as adverb input flood. Fifteen students in the noninferencing group participated in the pretest and the first posttest (see below); thirteen of these students took the second posttest. In Group 2, which I will refer to as the inferencing group, in addition to the adverb flood, students received verbal inductive inferencing exercises in both French and English. These consisted of exercises in analogies, series completions, and classifications. Thirty students in the inferencing group participated in the pretest and first posttest; twenty-nine of these students took the second posttest.

Immediately following the two week instructional period, each group was posttested using the Word Order Correction Task and the Acceptability Judgment Task. Three weeks after the first posttest, students were posttested again to determine any long term effects of the teaching material.

All tests were administered at the regular class times on a Wednesday, the day of the week the classes did not meet (see "Teaching").

In an attempt to take into account the possible confounding variable of teaching style, a questionnaire was administered to the teachers after the two week instructional period. Even though the teachers were working from the same syllabus, I could not be assured that all of the students were receiving the same type of input. An attempt was therefore made to quantify the input based on the responses to the questionnaires.

Following the two week instructional period, a questionnaire was also administered to the students. The goal of this questionnaire was to obtain a descriptive analysis of the students' perceptions of the input and to ensure that no corrective feedback or explicit rule formation with respect to adverb placement had been provided

to the students.

3.2. SUBJECTS

Forty-five volunteers were obtained from four sections of intensive first year French (French 150) at Michigan State University. Biographical information was obtained from a cover sheet (Appendix A) attached to the tests. The database consists of 4 males and 41 females. Subjects ranged in age from 17 to 22 years old (average age 18 years 4 months). Previous years of studying French ranged from 2 to 5.5 (average years of previous French instruction 3 years 7 months). Four subjects reported that they grew up speaking a language in addition to English: Latvian, Croatian, Amharic and French, and Vietnamese. Of these, Latvian, Croatian, and Amharic are used in addition to English in the respective subjects' homes. All of the subjects were American with the exception of two Canadians. Seven subjects reported living in French-speaking countries; of these three had lived in a French-speaking country for a duration of one month, one for a duration of three months, one for a duration of one year and one month, one for a duration of eight years, and one for a duration of nine years.[4]

3.3. TEACHING

3.3.1. Adverbs

The text used in French 150 is *Bonjour, ça va?* (Rochester, Muyskens, Omaggio Hadley, & Convert-Chalmers, 1991). The material scheduled for the two week period of the study included: passé composé, imparfait, question formation, reflexive pronominal verbs, reciprocal reflexive verbs, and prepositions with geographical names.

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[4] The test scores of the students who had lived in French-speaking countries did not differ from the other students' scores; therefore, these students were not eliminated from the database.

A summary of the material covered in the text during the instructional period is provided in Appendix B. This semester-long course is designed for students who 1) do not quite place into second year French; 2) do not feel confident enough to take second year French; and/or 3) have not been exposed to French for a period of time. The four sections were taught by four different teachers. The course meets for fifty minutes, four times per week (Monday, Tuesday, Thursday, Friday) and can be classified as communicative in approach. Students had not been explicitly taught adverb placement in French 150 prior to the study.

Following Trahey and White (1993), the goal was that students would be exposed to only positive evidence of adverb placement in French. As adverbs are not frequently present in naturally occurring classroom discourse (Trahey & White, 1993), adverbs of frequency and manner were integrated into the regular lessons, if the exercise was conducive to such manipulation. To the extent possible, sentences were used in which the verb was in the present tense and with main verbs rather than auxiliaries, because French and English do not differ with respect to adverb placement with auxiliaries. Materials contained adverbs in all possible positions, but were predominantly in the SVAO word order. Activities included games, stories, dictées, and exercises which were done individually, in groups or pairs, and/or as a class. Some of the exercises in the text already contained adverbs, and the teachers were asked to be sure to incorporate these into their daily lessons. As mentioned previously, teachers were asked not to correct any errors of adverb placement which the students might produce. Importantly, students did not receive form-focused instruction in adverb placement but rather were flooded with examples of this structure. The altered lessons used during the two week instructional

period are given in Appendix C.[5]

3.3.2. Inferencing

The lessons taught to this group included both adverb flood (Appendix C) and inferencing exercises as shown in Appendix D.

The inferencing lessons were drawn from four sources: Carton (1966), the students' text (*Bonjour, ça va?*), Sternberg (1988), and those which I created. The exercise from Carton (1966, pp. 83-86) and those from the students' text (e.g., "Mise en pratique: Anticipating content" pp. 165-167) can be classified as explicit skill instruction (O'Malley & Chamot, 1990). The inductive reasoning exercises adapted from Sternberg and those which I developed can be considered embedded (see Chapter Two, "Learning Strategies" for definition) in that the strategy being taught was not made explicit to the students.[6] Based on the assumption, argued in Chapter Two, that the inductive inferencing process is a general cognitive process which may be utilized in various domains, exercises were presented in both French and English. For those exercises which were conducted in French, and which did not focus on acquisition of new vocabulary, an attempt was made to use vocabulary items which the students would know so that students would not be hindered in practicing the inferencing process as a result of not knowing the vocabulary.

Example 3-3 below (Carton, 1966) illustrates a portion of an explicit lesson taught to students to help them guess the meaning of a vocabulary item unknown to them:

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[5] All exercises were checked by a native speaker of French.

[6] This does not mean, however, that the reason for the answer to an analogy, for example, was not explained to the students. Rather, it means that the targeted strategy was not explained to the students.

(3-3) Questions to Facilitate Inferencing

A. Is it a NOUN?
1. Grammatical questions
a. Is it singular or plural?
b. What adjective modifies it, if any?
c. What gender is it?
d. Is it the subject or object of a verb?

2. Pragmatic questions
a. Does it refer to person, things, conditions, events, qualities?
b. How many?
c. What kind?

B. Is it a VERB?
1. Grammatical questions
a. Does it show future, present, or past?
b. What is its subject?

Exercises were used during the two week instructional period which were intended to allow students to practice Carton's method. For example, an exercise used on October 7 is shown in 3-4.

(3-4) Write the following sentences on the board and ask the questions listed below.

1. _____ s'est levé à six heures.
2. _____ s'est regardé dans le miroir.
3. Je me lève lentement à six heures.
4. _____ se lève rapidement à neuf heures.

Are the subjects masculine or feminine? How do you know?

In this example, students must know to look to the verb for a possible answer to the question. After identifying the verb as reflexive pronominal, they can then ask themselves what information, if any, the verb provides them with respect to the subject. Once they identify the verbs in sentences 3 and 4 as present tense, they can then conclude that the gender of the subject cannot be determined. After identifying the verbs in sentences 1 and 2 as passé composé, they then can ask themselves if agreement

features are masculine or feminine, and thus conclude that the subjects must be masculine.

Listed in 3-5 below is an example of an exercise drawn from the students' text which explicitly explains how students can use clues to help them increase their reading comprehension.

(3-5) **Avant de lire.**

> **Anticipating content**. Text illustrations, titles, and lead lines or highlighted material are valuable aids in reading. Before starting to read a passage, you can examine them for clues about the content of the accompanying text. Clues serve as advance organizers to the reading. In-text illustrations and captions can also clarify meaning during the reading process itself, as visual representations can convey specific and general, explicit and implicit information. Readers who start with a working hypothesis when confronted with an unfamiliar text seem to read more quickly and with greater understanding. (Rochester et al., 1991, pp. 165-166)

While eductive ability may be unchanging, it has been suggested that it can be developed, refined, and displayed in activities which people value (Raven, Raven, & Court, 1991, p. G5). Sternberg (1988) is one of the strongest proponents of the possibility for individuals to improve their performance in activities which require inductive reasoning and has set out to develop exercises which will achieve this goal. The majority of the inferencing exercises were therefore drawn from Sternberg (1988). He enumerates four processes which can be subsumed under inductive reasoning: encoding, inference ("the discovery of one or more relationships between objects or events," p. 117), mapping ("the recognition of the relationship between two relationships," p. 130) and application ("applying a relation that has been previously inferred," p. 132). In addition to exercises in these individual processes (see below), students were given exercises in analogy, series completions, and classifications which

require the use of all four processes. Examples of each are provided in 3-6 through 3-8.

(3-6) Analogy

Parent is to father as child is to

a. uncle
b. adult
c. son
d. brother (p. 135)

(3-7) Series Completion

Seed, seedling, sapling: teenager,

a. adolescent
b. child
c. adult
d. infant (p. 139)

(3-8) Classification

Book,

a. chapter, page
b. magazine, letter
c. publisher, printer
d. shelf, library (p. 147)

In the instance of analogy, for example, first the various terms must be encoded (identified); obviously, the inductive process may be interrupted here if the terms of the analogy cannot be identified. Next, a relationship between the attributes of the first two terms, *a father is a parent*, is inferred. Then, the relationship that links the first half of the analogy to the second half must be mapped or connected. Finally, the relationship inferred between the first two terms (from the third) is applied to each of the possible answers. Thus, *a father is a parent and a son is a child.*

As mentioned above, students were also given exercises in the individual processes which are components of inductive reasoning. For example, an exercise was created which combined vocabulary and conjugation review (from the regular lesson)

with inference. A portion of an exercise used on October 4 is listed in 3-9.

(3-9) Which word in each column does not belong? Why?

beau	partir
chaud	monter
froid	rentrer
vent	donner
pleut	rester

In this exercise, students must infer the relationship between the words in the column by recognizing the relationship each has to the expression "Il fait..." (column 1) and "être" (column 2). This inference is then applied in order to eliminate "pleut" and "donner."

Appendix D provides a complete list of the inferencing exercises and the process which the exercise is intended to target.

3.3.3. Questionnaires

As stated in the "Procedures Overview" section, a questionnaire (Appendix E) was administered to the teachers after the two week instructional period. The goal was to be able to quantitatively compare across class sections and determine the different types of input, if any, provided to the students. Teachers were asked to indicate whether the activity was conducted individually (4 points), as homework (4 points), as pairs (3 points), as a group (2 points), as a class (1 point), or was not done (0 points).[7] For those exercises which were assigned as homework, teachers informed me if a student did not do the homework. The reasoning behind this quantification is that if an exercise is done individually, presumably the student is attending to the task and receiving the input.

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[7] It was possible for a student to receive more than 4 points for a particular exercise. For example, if the exercise was done as homework (4) and then gone over in class (1), the total points would equal 5.

Whereas, the possibility exists with class activities that students are not paying attention and thus not receiving the input. If one assumes that the maximum amount of input is received if exercises are conducted either as pairs or individually and then reviewed as a class, the highest adverb input score possible was 151.

An inferencing input score was also assigned for each student. The total points possible for a student in the inferencing group was 8 (1 point for each day). Those students in the noninferencing group all received an inferencing input score of 0.

Teachers informed me of the students who were absent and which day(s) they missed. The adverb input score and inferencing input score of those students were adjusted accordingly.

As stated previously, a questionnaire (Appendix F) was also administered to the students following the two week instructional period. As I was not permitted to observe or record the classes, this questionnaire, coupled with the teachers' questionnaires, was a means to obtain a descriptive analysis of the classroom procedures and methodology. The primary goal of the questionnaire was to determine if corrective feedback or explicit instruction with respect to adverb placement had been given to the students. In addition to the questions dealing with this topic were similar questions regarding the passé composé, a grammatical point which I knew had been explicitly taught; the purpose was to be able to compare students' responses to whether or not the two structures were explicitly taught. Secondary goals of the questionnaire were to gain information regarding the students' perceptions of the similarities and differences between French and English, the ease or difficulty of learning French, in addition to their reasons for taking French.

3.4. ACCEPTABILITY JUDGMENTS

Valid and reliable measures of second language learners' grammatical knowledge continue to be the topic of debates among SLA researchers (Schachter, Tyson, & Diffley, 1976; Chaudron, 1983; Sorace, 1988; Birdsong, 1989; Eubank, 1989; Bley-Vroman & Chaudron, 1990; Ellis, 1990, 1991; Schachter & Yip, 1990; Christie & Lantolf, 1991; Tarone, Gass, & Cohen, 1994). "Perhaps one of the most controversial (and yet most commonly used) methods of doing second language research is through the use of intuitional data. In broad terms, intuitional data refer to a type of performance in which one is asked about the language rather than being asked to use the language" (Gass & Selinker, 1994, p. 35). Although lost sight of at times, it is now accepted knowledge that these intuitional data, as obtained by current methodology, are not a direct reflection of a learner's competence, which is an abstraction or theoretical construct (Chomsky, 1986; Sorace, 1988; Birdsong, 1989; White, 1989; Ellis, 1990; Gass, 1994).[8]

In an attempt to create more valid measures of grammatical competence, researchers have focused on identifying what Sorace (1988, p. 172) refers to as "extra-grammatical factors" which may influence or be involved in the intuitional process. Among these factors are: processing constraints, which may result from vocabulary or sentence length and/or complexity (Schachter, 1989; Schachter & Yip, 1990; Cowan & Hatasa, 1994); presentation of the material, which includes order, position, and contextualization of the items in addition to mode of presentation (Cowan & Hatasa, 1994); personality or the 'yea-saying,' 'nay-saying,' or 'maybe-saying' factors (Felix,

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[8] However, Sorace (1993) reports that the technique of magnitude estimation, given as a timed procedure, may tap tacit, not metalinguistic, knowledge.

1988; Bley-Vroman, Felix, & Ioup, 1988); linguistic training of the informants; and judgments by the informants of something other than the grammatical structure under investigation (Kellerman, 1985). Concern for these factors has thus resulted in a certain amount of variation in the design of acceptability judgment tasks.

Gass (1994, p. 310) enumerates

> three dimensions in which [acceptability] judgments vary. First researchers differ in whether or not they ask learners to correct those sentences that are judged ungrammatical. . . . Second, differences occur in what is being asked: In some cases learners are asked for judgments on single sentences; in others they are asked for preference judgements. . . . Within [acceptability] judgment tasks, another difference arises: Some sentences are contextualized; some are not. A third dimension has to do with the number of possible responses that one can give. In some cases, responses are dichotomous; a sentence can be either grammatical or ungrammatical. In others, there is a range of possibilities that include the degree of confidence a learner has in making responses. Additionally, researchers vary widely in the number of sentences subjects are asked to give judgments about, ranging from 30 or 40 to more than 200.

In discussing the methodological considerations of studies employing acceptability judgments, Chaudron (1983,p. 369) emphasizes that "it seems mandatory that, though they are indicators of subjects' knowledge or values, judgments should be validated by other measures on the same or comparable items and subjects." Among those measures he lists are: 1) productive transformations, imitations, or completions; 2) ability to identify and correct errors; and 3) other judgments or performance.

The present study attempts to respond to these issues of validity[9] by obtaining judgments from two somewhat different procedures, a Word Order Correction (WOC) Task and an Acceptability Judgment (AJ) Task, which incorporate various aspects of Gass' three dimensions. The WOC Task consisted of contextualized sentences (dimension 2) and subjects were asked to correct those sentences which were incorrect

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[9] Other validity issues are implicitly addressed later in the chapter in the description of the tasks.

(dimension 1). The AJ Task consisted of pairs of sentences (dimension 2) and subjects were asked to decide if both sentences were correct, both were incorrect, only was correct, or they did not know (dimension 3).

In discussing the issue of the reliability of acceptability judgments, it is necessary to maintain a clear distinction between the reliability of informants' responses and the reliability of researchers' interpretation of the data. For example, Bley-Vroman, Felix, and Ioup (1988) allowed for a Not Sure response and counted it as an Incorrect response; whereas, Coppieters (1987) counted the Not Sure responses as Correct. Similarly, on 4 point scales of Clearly Grammatical, Probably Grammatical, Probably Ungrammatical, and Clearly Ungrammatical, the middle two categories have been at times kept distinct (Schachter & Yip, 1990; Gass & Ard, 1984) and at times combined with the responses at the top and bottom of the scale (Schachter, 1990). Furthermore, Gass (1994, pp. 308-309) argues that recent studies attesting to the unreliability of acceptability judgments may be more a result of methodological flaws (Ellis, 1990) or an 'anti-acceptability judgment' bias on the part of the researchers in interpreting the results (Christie & Lantolf, 1991).

Sorace (1988) suggests that there are two solutions to the problem of inconsistent learner judgments. The first solution is that "sentences about which there is no clear judgment are not sentences that should be included in our descriptions of second-language grammars" (Gass, 1994, p. 308). For this reason, the AJ Task in the present study included a Don't Know category, and if this response was circled, the item was not

counted as either Correct or Incorrect.[10]

The second solution is to acknowledge and accept the fact that learner's grammars are inherently indeterminate. That is, learners' grammars are incomplete, unstable, and constantly evolving (Adjemian, 1976; Sorace, 1988; Gass, 1994).[11] Therefore, while on the surface the acceptability judgment instrument may appear unreliable, the possibility exists that inconsistent responses are actually representative of an indeterminate grammar. The issue then becomes to distinguish determinate from indeterminate knowledge.

In an investigation of the reliability of acceptability judgment data, in which reliability was considered a function of syntactic constraints,[12] Gass (1994, p. 320) concludes:

> The data do not provide evidence for the view that judgment data are unreliable. Nor do they provide support for the view that individuals behave in an inconsistent manner. On the other hand, there is evidence to suggest that low reliability occurs in just those areas where greater indeterminacy is predicted. . . . By comparing judgment data with data based more directly on linguistic principles, it has been shown that judgment data can, when used properly and appropriately, be useful in second-language acquisition research. In sum, we find that grammaticality judgments are indeed reflective of patterns of second-language use.

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[10] Additionally, on pairs of SAVO-SVAO sentences on the AJ Task, respondents could only get a correct score if they chose the SVAO word order, not if they chose the Both Right response. The number of Both Right responses is also tabulated. In this way, one is able to obtain a clearer picture of which structures are and are not being accepted by the subjects. This is discussed in detail in "Scoring Procedures."

[11] While Birdsong (1989, p. 73) states that "acceptability is in principle a hierarchical or scalar concept, while grammaticality is not," he acknowledges Mohan's (1977) notion of 'fuzzy grammar' which Sorace (1988) in part bases her work on.

[12] The acceptability judgment test consisted of 30 individual sentences (6 distractors and 4 sentences, 2 grammatical and 2 ungrammatical, of each of the 6 relative clause types. Subjects were asked to judge each sentence as Correct or Incorrect and then to indicate their degree of confidence on a scale from +3 (Definitely Correct) to -3 (Definitely Incorrect).

3.5. TESTING MATERIALS

3.5.1. Adverb Placement

The Word Order Correction Task and the Acceptability Judgment Task[13] were those used by White (1991a, 1991b; 1992b) and Trahey and White (1993). These tests were translated from English into French and checked by a native speaker of French.

As implied in the previous section, "Acceptability Judgments," many ". . . variables, along with dimensions of skill, mental representation of linguistic knowledge, and retrieval and application of that knowledge, add up to a distinctly Heisenbergian picture of the language competence that is available through metalinguistic performance" (Birdsong, 1989, p. 69). For this reason, along with the fact that students were allowed unlimited time on all tasks (see Footnote 7), I assume that the tests used here represent metalinguistic performance and not competence.

3.5.1.1. Word Order Correction Task

This task (Appendix G) was a cartoon story. Instructions were in English. Students were told that in some of the sentences, some of the words were in the wrong place. They were asked to correct those sentences which were incorrect by circling the word which was misplaced and drawing an arrow to the location where the word should be. An example was provided. A single version of the task was administered at the three testing sessions. The story contains 33 sentences, 16 of which involve adverb

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[13] The cartoon task was originally referred to as a Grammaticality Judgment/Correction Task and the multiple choice task was referred to as a Preference Task. Following Footnote 1, I have chosen to use different terminology. In the strictest sense, a Preference Task asks students to decide which sentence they prefer. I refer to this task as the Acceptability Judgment Task because this task asks students to decide the correctness of the sentences. For the sake of clarity, in order to clearly distinguish the cartoon task, which is another form of an acceptability judgment task, from the multiple choice task, I refer to this task as a Word Order Correction Task.

placement. Of those 16, 4 sentences were in the ungrammatical SAVO order, 3 were in the ungrammatical SAVPrepositional Phrase (SAVPP) order,[14] 2 were in the grammatical SVAO order, 2 were in the grammatical SVAPP order, and 5 were in the grammatical ASVO or SVOA order. Ten sentences were grammatical and did not contain adverbs. Seven ungrammatical distractor sentences were also included in the cartoon. As an indication that students were attending to the task, at least three sentences had to be altered in order for the test to be included in the results.

3.5.1.1.1. Scoring Procedure

Two scores for each student were computed, an SAVO error score and an SVAO correct score. The SAVO error score consists of the number of acceptances of or changes to this ungrammatical order. The SVAO correct score consists of the number of acceptances of or changes to this grammatical order. In order to take into account those sentences, for example, which were changed from SAVO to ASVO or SVOA which clearly is not showing an acceptance or usage of the French word order, the correct and error scores were further classified according to the guidelines shown in 3-10 and 3-11.

(3-10) Correct Score
- C1: Unchanged from SVAO
- C2: Changed SAVO to SVAO
- C3: Changed SAVO to ASVO or SVOA
- C4: Changed ASVO or SVOA to SVAO

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[14] Following Trahey & White (1993), SAVPP sentences were counted as SAVO and SVAPP sentences were counted as SVAO, because none of the sentences with prepositional phrases were problematic such as:

John quickly went to his car.
John went quickly to his car.

In other words, all the sentences with indirect objects clearly followed the same constraints as sentences with direct objects with respect to adverb placement.

(3-11) Error Score
E1: Unchanged from SAVO
E2: Changed ASVO, SVOA, or SVAO to SAVO
E3: Changed SVAO to ASVO or SVOA

Sixteen of the sentences contained adverbs, therefore, the maximum possible error is 16 and the maximum possible correct score is 16.

3.5.1.2. Acceptability Judgment Task

This task (Appendix H) consisted of 32 pairs of sentences. Instructions were in English. Students were told that in some of the sentences, some of the words were in the wrong place. They were asked to decide if both sentences were correct, both were incorrect, only one was correct, or they did not know. Four examples were provided. A sample item from the test is provided in 3-12.

(3-12)
a. Les enfants détestent les devoirs ordinairement.
b. Les enfants ordinairement détestent les devoirs.
only a is right only b is right both right both wrong don't know

Of the 32 pairs of sentences, there were 4 distractors and 28 contained adverbs. Of these 28 pairs, 10 pairs contained adverbs in sentences with prepositional phrases,[15] and 18 pairs contained sentences with adverbs in SVAO, SAVO, ASVO, or SVOA order. Of these 18 pairs, 6 pairs consisted of sentences in the ungrammatical SAVO order paired with sentences in the ASVO or SVOA order, 7 pairs consisted of sentences in the grammatical SVAO order paired with sentences in ASVO or SVOA order, and 5 pairs consisted of sentences in the SAVO and SVAO order. In other words, 11 sentences were

[15] Because these sentences proved questionable to a native speaker of French with respect to acceptable adverb placement (see Footnote 13), these sentences were not included in the Error or Correct scores, unlike Trahey & White's (1993) procedure and unlike the scoring procedure for the WOC Task in the present study.

in SAVO order and 12 sentences were in SVAO order.

White (1991a, 1991b) originally created two versions of this test, containing different pairs of sentences with the items in each version in different orders. No effects for version or order were found. Therefore, in the present study the same pairs of sentences were used at the three testing sessions. The order of the pairs, however, was changed for the first posttest so that students took the same test for the Pretest and for the second Posttest.

3.5.1.2.1. Scoring Procedure[16]

Two scores for each student were computed, an Error score and a Correct score. The Error score was computed as follows. For the 6 pairs of sentences containing a sentence in SAVO order and a sentence in ASVO/SVOA order, an error was counted if a student chose SAVO as correct or the Both Right response. For the 7 pairs of sentences containing a sentence in SVAO order and a sentence in ASVO/SVOA order, an error was counted if the student chose only ASVO/SVOA or the Both Wrong response. For the 5 pairs of sentences containing a sentence in SAVO order and a sentence in SVAO order, an error was counted if the student chose only SAVO. The maximum Error score is 18.

The Correct score was computed as follows. For the 6 pairs of sentences

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[16] These scoring procedures differ from Trahey & White (1993) whose correct scores actually include acceptance of the incorrect word order (Trahey & White, 1993, p. 202, Footnote 10). The present method of scoring the 5 pairs of SAVO-SVAO sentences is intended to distinguish those students who clearly know the correct word order from those who are still accepting both structures. Thus, a response of Both Right or Both Wrong is counted as neither an error nor as correct, contrary to Trahey & White who counted a Both Right response as correct. While Trahey & White seem to be focusing more on the inclusion of the correct word order (correct scores were not tallied for rejection of incorrect word orders), the present study is equally interested in the exclusion of the incorrect word order. Therefore, a response of Both Wrong to an SAVO-ASVO/SVOA pair is counted as correct.

containing a sentence in SAVO order and a sentence in ASVO/SVOA order, a correct score was counted if the student chose only ASVO/SVOA or the Both Wrong response.[17] For the 7 pairs of sentences containing a sentence in SVAO order and a sentence in ASVO/SVOA order, a correct score was counted if the student chose only SVAO or the Both Right response. For the 5 pairs of sentences containing a sentence in SAVO order and a sentence in SVAO order, a correct score was counted if the student chose only SVAO. The maximum Correct score is 18.

The number of Both Right responses to the 5 pairs of SAVO-SVAO sentences were also tabulated in order to obtain further information regarding those students who are still accepting both structures.

3.5.2. Inductive Inferencing

3.5.2.1. Raven's Standard Progressive Matrices Test

Raven's Standard Progressive Matrices (SPM) Test was developed in order to assess "eductive ability, that is, the ability to educe correlates, the ability to generate high level schemata, which make it easy to handle complex events" (Raven, 1989, p. 1).[18] The test consists of five sets (A-E) of 12 problems each which are presented in abstract figures and designs. A problem consists of a 3 x 3 matrix with the lower right hand element blank. Given 8 options, students must choose the one which will complete the matrix by inferring the rule(s) of the columns and rows. The sets in the test become increasingly more complex and difficult. Students were allowed unlimited time to

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[17] While the ASVO/SVOA sentence is correct, the response of Both Wrong reveals that the student is rejecting the SAVO order, which is the focus of the investigation.

[18] "The objective of Raven's research was to identify the *environmental* [italics in original], as well as genetic, origins of mental defect" (Raven, Raven, & Court, 1991, p. G10).

complete the test, which was administered at the Pretest session.

Raven's SPM (Appendix I) "was never intended to be used *on its own* as measure of (Spearman's) *g*, and still less as a measure of 'General Intelligence'" (Raven, Raven, & Court, 1991, p. G6). However, the test has been used and interpreted as a measure of nonverbal IQ. There are only three (of which I am aware) SLA studies which have used Raven's SPM (Flahive, 1980; d'Anglejan & Renaud, 1985; Abraham & Vann, 1987), and even though the authors have misrepresented what the test is measuring, the findings of one of these studies are particularly interesting.[19]

Flahive (1980, p. 34) conducted a study with 20 students, representing seven different first languages, to study "the relationship between scores on a nonverbal IQ test [that is, Raven's SPM], three reading tests, and the Test of English as a Foreign Language." The three reading comprehension tests were "the paragraph comprehension portion of the McGraw-Hill Basic Skills System Reading Test (Raygor, 1970) . . . a paraphrase recognition test . . . and a cloze test" (Flahive, 1980, p. 35). While both the McGraw-Hill test and the paraphrase recognition test were multiple-choice, the author classifies only the former as a traditional multiple-choice reading test. The author found

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[19] d'Anglejan & Renaud (1985), investigated the relationship between learner characteristics - nonverbal IQ, years of schooling, cognitive style, age, classroom anxiety, competence in English, contacts with Francophones, use of French, and literacy/illiteracy - and achievement in French as a Second Language of 391 adult immigrants from 50 different countries in Montréal. The ages of the students ranged from 17-63. Predictor variables included: Raven's SPM, The Group Embedded Figures Test (Witkin, Otman, Raskin, & Karp, 1971), and a Sociolinguistic and Attitudinal Questionnaire developed by the authors. Criterion variables included teachers' evaluations and The Test de Rendement en Français-Ministère de l'Immigration du Québec (MIQ). This latter test contains four subtests in listening comprehension, reading comprehension, speaking, and writing. The authors found that "nonverbal IQ was the most powerful predictor of second language achievement in (the) study" (1985, p. 12). Two comments are in order. First, the authors have mistakenly interpreted Raven's SPM as a measure of IQ. Second, it is unfortunate that no detailed description of the MIQ is provided. Given the results of Flahive (1980), it would be interesting to determine if the MIQ is in fact mainly a test of inferencing skills.

that

> all the measures are highly correlated [which] is not surprising, since three of the tests are purportedly testing the same skill, reading. Nor are the correlations between the [paraphrase recognition] test and the TOEFL and the cloze and TOEFL surprising. They are all measures of language proficiency. What is surprising is the high correlation between Raven's and the McGraw-Hill test. (Flahive, 1980, p. 37)

The author (1980, p. 38) concluded that "it is reasonable to conclude that reading subtests . . . are not simply tests of reading ability. They are also tests of intelligence."

As stated above, the author is mistaken in assuming that Raven's SPM is a test of intelligence. What is interesting is that the author describes the McGraw-Hill test (which highly correlated with Raven's SPM) as a "measure [of] a subject's ability to make inferences, to pick out main thoughts and supporting ideas, and to discover organizational patterns in paragraphs and essays" (Flahive, 1980, p. 35). Given that this description could very easily be a characterization of Raven's SPM, with slight modifications, it is not surprising that there was a high correlation between the two tests.

3.5.2.1.1. Validity

Raven's SPM Test is "consensually accepted as the quintessential test of inductive reasoning" (Alderton & Larson, 1990, p. 888). Raven, Court, and Raven (1992, p. SPM6) claim that the SPM is

> a valid index of the construct [of eductive ability and] that the test measures a range of abilities that are built one on top of the other: it is not generally possible to solve the more difficult problems if one does not possess the abilities required to solve the easier ones.

This has been supported by studies of item difficulties, the order of which is invariant across ability levels, conducted during numerous standardizations of the test. Item Characteristic Curves also indicate

> a) that the items are all measuring a common factor (if they were not, there would be no relationship between the percentage able to solve a

given problem and the total scores);

b) that the abilities that are required to solve the more difficult problems form part of a continuum which starts with the easiest items; and

c) that, although the abilities that are required to solve the more difficult items may appear to be qualitatively different from those required to solve the easier ones, these apparently different abilities shade imperceptibly one into the other. (Raven, Court, & Raven, 1992, p. SPM6)

3.5.2.1.2. Normative Studies

Since its development in 1936, the test is continually standardized based on norming studies conducted approximately every five years. These studies have taken place in Great Britain, Germany, Australia, China, and the United States with all ages. "The 1986 US standardization was based on a series of local norming studies conducted (with) over 22,000 students" (Raven, Court, & Raven, 1992, p. SPM9). Based on these studies, the authors (Raven & Others, 1990, p. 73) concluded:

a) that, at any point, there is considerable similarity in the norms obtained in different countries with a tradition of literacy;

b) that the tests scale in very much the same way in different cultures, socio-economic groups, and ethnic groups;

c) that the differences between the mean scores of the various ethnic groups within the U.S. parallels differences in their height, birth weight, and rates of infant mortality; and

d) that the bulk of the variance in test scores is within, not between, ethnic and socio-economic groups and is not accounted for by the major and obvious social and economic inequalities within our society.

3.5.2.1.3. Reliability

Internal Consistency. The internal consistency of the SPM is estimated in a different way than the factor-analytic tradition, because "it does not make sense to inter-correlate the items because one cannot use the fact that someone gets the easiest item right to predict whether he or she will get the most difficult item right" (Raven, Court, & Raven, 1992, p. SPM11). Internal consistency of the SPM is determined by 1) "whether the items scale in the same way for different populations" (Raven, Court, & Raven, 1992, p.

SPM11), and 2) if the Item Characteristic Curves have few cross-overs, are equally spaced, and cover the whole range of ability.

> In the US standardisation the correlations between the item difficulties established separately for different ethnic groups (Black, Anglo, Hispanic, Asian, and Navajo) ranged from .97 to 1.0. [Additionally], the correlations between the item difficulties established separately in the UK, US, Germany, New Zealand, and China range from .98 to 1.0. (Raven, Court, & Raven, 1992, p. SPM11)

> The test therefore is extremely robust and works in the same way - measures the same thing - in a wide variety of ethnic, socio-economic, and age groups. (Raven, Court, & Others, 1989, p. RS4.13)

Test-Retest. Listed in Table 3.1 are the retest reliabilities from the original studies (1948) of the SPM. The time period between test and retest is not provided; however, Raven, Court, and Raven (1992, p. SPM 13) report that "well-conducted studies . . . indicate a satisfactory re-test reliability for SPM for periods up to one year." Note that the retest reliability is the best for the age group of the subjects used in the present study.

Table 3.1
Retest Reliability of SPM

Age range (years)	Mean Score	Retest reliability
13 +/- 1	41	0.88
Under 30[20]	48	0.93
30-39	37	0.88
40-49	35	0.87
50 and over	29	0.83

3.5.2.1.4. Scoring Procedure

A student's total score on the SPM is the number of problems solved correctly. The maximum score is 60. If an item was not answered or if two (or more) options

[20] The authors do not state the lower age range of this group.

were selected that item was not counted as correct. The student's total score is composed of the subscores for each of the five Sets of problems. The total score is then compared with the expected score composition for that score. These expected score compositions are based on the 1979 standardization of the SPM. The difference between the student's score on each Set and that normally expected for that total score is then listed as "discrepancies." An example of the computation is given in 3-13.

(3-13)

	SET					Total
	A	B	C	D	E	
Student Score	11	10	10	9	5	45
Expected Score Composition	12	11	9	9	4	45
Discrepancy	-1	-1	+1	0	+1	

> If a person's score on one of the Sets deviates by more than 2, the total score on the scale cannot be accepted at its face value as a consistent estimate of general capacity for intellectual activity. For general purposes, the total score appears to be relatively valid even when discrepancies of more than 2 points occur. (Raven, Court, & Raven, 1992, p. SPM30)

The time that each student took to complete the test was recorded in order to determine the average test time for this population and eliminate any who deviated significantly from the norm.

3.6. CHAPTER SUMMARY

In this chapter I have described the research design of the present study. I provided biographical sketches of the volunteers who participated in the study and explained the instructional materials which were used. I reviewed the justifications for the use of Acceptability Judgment Tasks in SLA and then described the tasks and the scoring procedures used in the present research. I provided a description of Raven's

Standard Progressive Matrices Test and a summary of the validity, reliability, and normative studies which support its use as a measure of inductive inferencing. The results of the research are presented in Chapter 4.

CHAPTER 4
RESULTS

In this chapter I first present descriptive results of learner variables of age, previous years of French, and gender by treatment group in addition to adverb input score[1] by treatment group. These variables are also described by class section. I also provide a descriptive overview of the mean scores on all tests by treatment group and note observed trends. I then present the results of the repeated measures ANOVA. Next, I report the results of the multiple regressions, focusing on those results which are significant. I conclude with a descriptive summary of the Teaching Questionnaire (Appendix E) and Student Questionnaire (Appendix F).

4.1. LEARNER VARIABLES

Table 4.1. Learner Variables By Group

VARIABLE	GROUP	N	$\bar{x}$	MDN	SD	MIN	MAX
AGE	INF	30	18.53	18.0	1.04	17.0	22.0
	NON	15	18.27	18.0	.88	17.0	20.0
YEARS OF FRENCH	INF	30	3.46	3.8	.86	2.0	5.0
	NON	15	4.13	4.2	1.05	2.0	5.6
ADVERB INPUT	INF	30	84.17	90.0	12.87	37.0	92.0
	NON	15	69.6	75.0	15.24	17.0	75.0
GENDER	INF	30	NON	15			
	-MALE	3	-MALE	1			
	-FEM	27	-FEM	14			

[1] Recall from Chapter 3, the adverb input score was derived from the Teaching Questionnaires as a means to take into account student absences and the variation in teaching style.

As shown in Table 4.1, students ranged in age from 17 to 22 years old, with the oldest student being in the inferencing group. Students' previous years of French study ranged from 2 years to 5.6 years; on the average, students in the noninferencing group had approximately 6 months more of French study than students in the inferencing group. Out of the 45 students participating in the study, 41 were female; 3 males were in the inferencing group and 1 male was in the noninferencing group.

Assuming a total possible adverb input score of 151 (see Chapter 3 for an explanation of this score), Table 4.1 shows that the inferencing group, on the average, received 56% of the total possible adverb input, while the noninferencing group received, on the average, 46% of the total possible adverb input. The minimum score under the adverb input score reflects student absences. In the noninferencing group, three students were absent during the instructional period of the study: one student was absent 6 times; one student was absent two times; and one student was absent one time. In the inferencing group, a total of 15 students were absent during the instructional period: one student was absent 4 times; one student was absent 3 times; and 8 students were absent one time each.

Table 4.2 displays the same data by class section and pooled as a single group. Some differences between class sections which are not readily apparent by describing the data based on treatment group are revealed in this table. Of note is the fact that the n-size of class #4 is considerably less than the other sections. With respect to age, all sections are roughly similar. However, with respect to previous years of French, class #3 stands apart from the other three sections. The minimum number of years of French study was twice (4 years) that of the minimum number of years of French study for the other sections (2 years). Therefore, the mean number of years of French study for class #3 is over one standard

deviation[2] greater than the means for classes #1 and #2, and it is almost 2 standard deviations greater than that of class #4.

Table 4.2. Learner Variables By Class Section

VARIABLE		Class1 INF n=13	Class2 INF n=17	Class3 NON n=11	Class4 NON n=4	ALL n=45
AGE	MEAN	18.77	18.35	18.27	18.25	18.44
	SD	1.30	.79	.79	1.29	.99
	MIN	17.0	17.0	17.0	17.0	17.0
	MAX	22.0	20.0	20.0	20.0	22.0
YEARS OF FRENCH	MEAN	3.40	3.51	4.6	2.83	3.68
	SD	1.04	.72	.56	.99	.97
	MIN	2.0	2.0	4.0	2.0	2.0
	MAX	5.0	4.3	5.6	4.1	5.6
ADVERB INPUT	MEAN	79.85	87.47	75.0	54.75	79.31
	SD	17.14	7.29	0.0	26.13	17.0
	MIN	37.0	73.0	75.0	17.0	92.0
	MAX	90.0	92.0	75.0	75.0	15.21
INFERENCING INPUT	MEAN	7.23	7.59			7.43
	SD	1.25	.49			.92
	MIN	4	7			4
	MAX	8	8			8

With respect to the adverb input score, class #4 stands apart from the other three sections. The mean adverb input score for class #4 is approximately 1.5 standard deviations less than those of classes #1 and #3, and it is over 2 standard deviations less than the mean adverb input score of class #2. As mentioned in the discussion of Table 4.1, one student in the noninferencing group was absent six times; this student was in class #4, as reflected in the minimum adverb input score of 17. Of note, also, is that no students were absent in class #3 during the instructional period.

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[2] The standard deviation referred to here is from Table 4.2, Years of French, all classes pooled as a single group.

Looking just at the inferencing classes, more students were absent in class #1 than in class #2. This is reflected in the lower minimum adverb input score and the minimum inferencing input score of class #1.

4.2. OVERVIEW OF ALL TESTS

Table 4.3 lists the means, medians, standard deviations, and minimum and maximum scores on the Acceptability Judgment Task for both groups. Table 4.3 shows that the minimum correct score of the inferencing group on each the AJ tests was lower than that of the noninferencing group. The maximum correct score of the inferencing group was higher than that of the noninferencing group at the Pretest, and each group obtained the same maximum correct score at Posttest 1 and Posttest 2. The minimum error score of the inferencing group was lower at the Pretest and the same as that of the noninferencing at Posttest 1 and Posttest 2. The maximum error score of the inferencing group was higher than that of the noninferencing group on all occasions. Furthermore, at all occasions the standard deviation of both the error and the correct scores was greater for the inferencing group.

Table 4.3. Acceptability Judgment Task

TEST	GROUP	N	$\bar{x}$	MDN	SD	MIN	MAX
PRE AJ CORRECT K=18	INF NON	30 15	9.20 9.27	9.0 10.0	4.38 2.84	2.0 4.0	18.0 14.0
PRE AJ ERROR K=18	INF NON	30 15	7.13 6.20	7.0 6.0	3.98 2.37	0.0 3.0	15.0 13.0
POST1 AJ CORRECT K=18	INF NON	30 15	11.03 11.33	11.0 14.0	5.14 4.43	0.0 5.0	18.0 18.0
POST1 AJ ERROR K=18	INF NON	30 15	5.9 4.93	6.0 4.0	4.54 3.28	0.0 0.0	17.0 10.0
POST2 AJ CORRECT K=18	INF NON	29 13	12.45 13.31	14.0 14.0	4.79 4.31	2.0 6.0	18.0 18.0
POST2 AJ ERROR K=18	INF NON	29 13	4.66 3.39	3.0 3.0	4.28 3.02	0.0 0.0	16.0 10.0

Table 4.4 lists the means, medians, standard deviations, and minimum and maximum scores on the Word Order Correction Task and Raven's Standard Progressive Matrices for both groups. Table 4.4 shows that the minimum correct score of the inferencing group on all occasions of the WOC task was lower than that of the noninferencing group. The maximum correct score of the inferencing group was higher than that of the noninferencing group on all occasions. The standard deviation of the correct score for the inferencing group was less than that of the noninferencing group at the Pretest and greater at Posttest 1 and Posttest 2. The minimum error score of both groups was the same. The maximum error score of the inferencing group was higher on all occasions. The standard deviation of the error score for the inferencing group was less than that of the noninferencing group at the Pretest and Posttest 2 and greater at Posttest 1.

Table 4.4. Word Order Correction Task And
Raven's Standard Progressive Matrices

TEST	GROUP	N	$\bar{x}$	MDN	SD	MIN	MAX
PREWOC CORRECT K=16	INF	30	7.93	8.0	2.39	2.0	14.0
	NON	15	7.47	8.0	2.85	3.0	13.0
PREWOC ERROR K=16	INF	30	3.97	4.0	2.16	0.0	11.0
	NON	15	3.93	3.0	2.55	0.0	9.0
PST1WOC CORRECT K=16	INF	30	8.97	9.5	3.26	2.0	14.0
	NON	15	7.93	9.0	2.55	4.0	11.0
PST1WOC ERROR K=16	INF	30	3.20	2.0	2.99	0.0	13.0
	NON	15	3.53	3.0	2.53	0.0	8.0
PST2WOC CORRECT K=16	INF	29	9.69	10.0	3.71	1.0	16.0
	NON	13	9.31	10.0	2.93	4.0	12.0
PST2WOC ERROR K=16	INF	29	2.79	2.0	2.70	0.0	12.0
	NON	13	2.62	1.0	2.84	0.0	9.0
RAVEN'S K=60	INF	30	49.40	51.0	5.56	34.0	56.0
	NON	15	49.27	51.0	5.05	38.0	57.0
TIME	INF	30	20.07	19.0	4.65	11.0	30.0
	NON	15	18.20	18.0	2.51	14.0	25.0

The mean scores on Raven's SPM of both groups are approximately the same. The minimum and maximum scores of the inferencing group are slightly lower than those of the noninferencing group. With respect to the time taken to complete the test, the mean and median times of the two groups are approximately equivalent. The inferencing group shows a greater standard deviation. Additionally, the inferencing group's minimum time to complete the test is slightly less than the noninferencing group's minimum time, and their maximum time is greater than that of the noninferencing group. A *t*-test reveals a significant difference (t=7.48; $p<.001$) between the two groups with respect to time taken to complete

Raven's SPM.

Figures 4.1 and 4.2 show the mean correct and mean error scores on the Pretest, Posttest 1, and Posttest 2 for the Acceptability Judgment and Word Order Correction Tasks for each group.

Figure 4.1 shows that the general trend was improvement over time on the mean correct scores for both groups on both tasks.

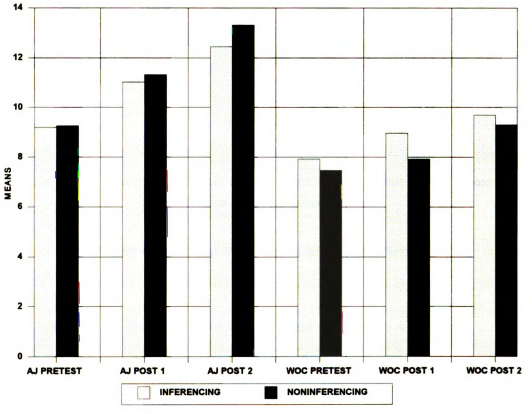

Figure 4.1. AJ and WOC Tasks Mean Correct Scores

Similarly, Figure 4.2 shows that the mean error scores of both groups decreased on both tasks over time.

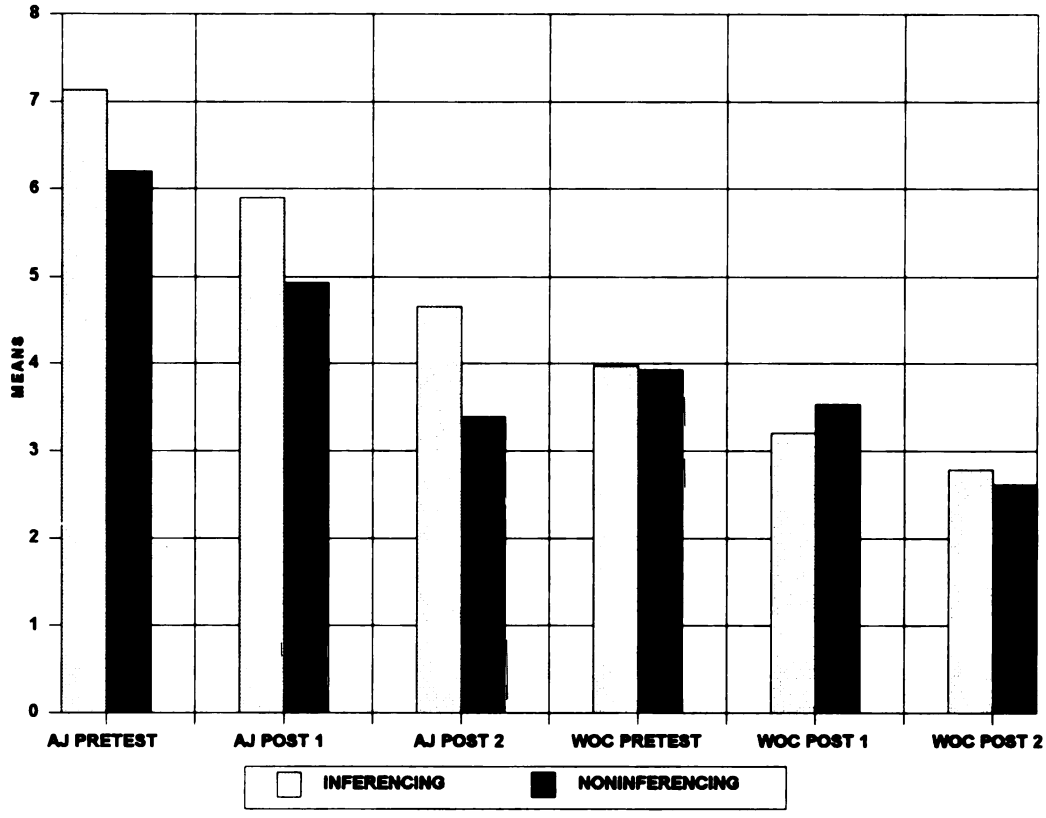

Figure 4.2. AJ and WOC Tasks Mean Error Scores

The same data are displayed somewhat differently in Figures 4.3 to 4.6.

4.2.1. Acceptability Judgment Task

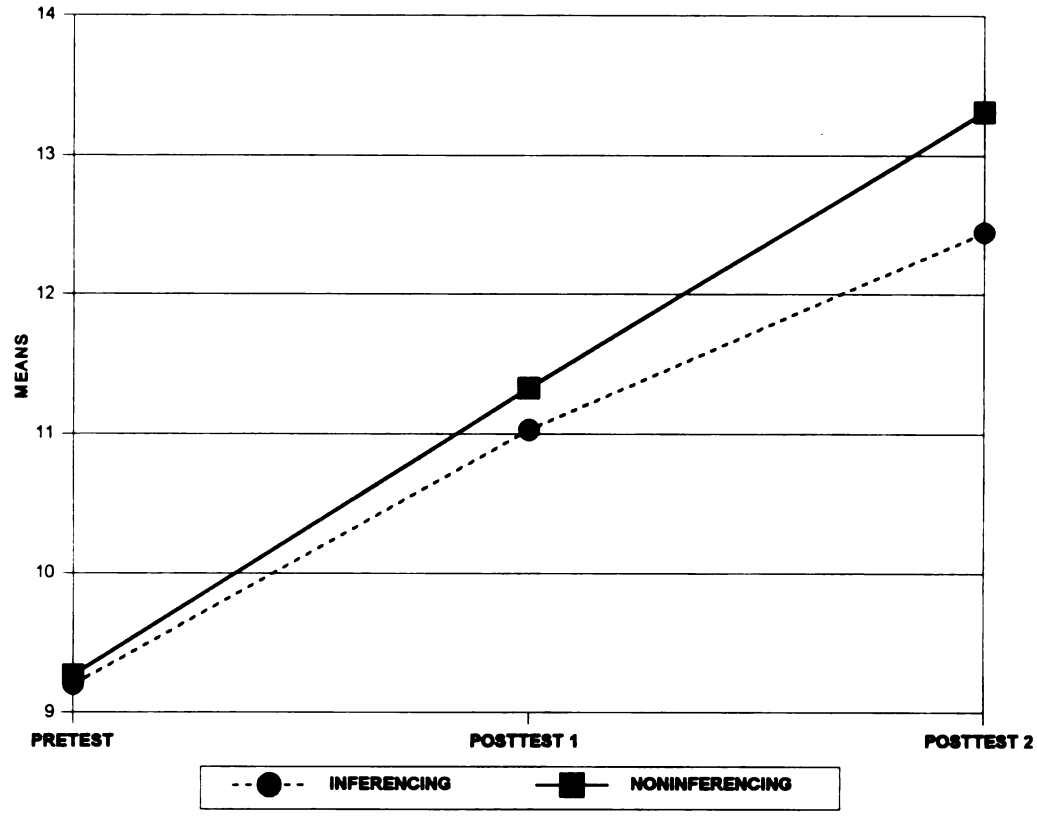

Figure 4.3. AJ Task Mean Correct Scores

Figure 4.3 shows the mean correct scores of both groups on the AJ Task for each testing session. Both the inferencing and noninferencing groups showed improvement from Pretest to Posttest 1 to Posttest 2, with the noninferencing group performing slightly better than the inferencing group at each testing session. Additionally, the change in means across testing sessions was slightly greater for the noninferencing group. From Pretest to Posttest 1, the change in means was 2.06 for the noninferencing group versus 1.83 for the inferencing group; from Posttest 1 to Posttest 2, the change in means was 1.98 versus 1.42; and from Pretest to Posttest 2, the change in means was 4.04 versus 3.25. Thus, the difference

between the two groups' mean correct scores steadily increased from .07 at the Pretest to .3 at Posttest 1 to .86 at Posttest 2.

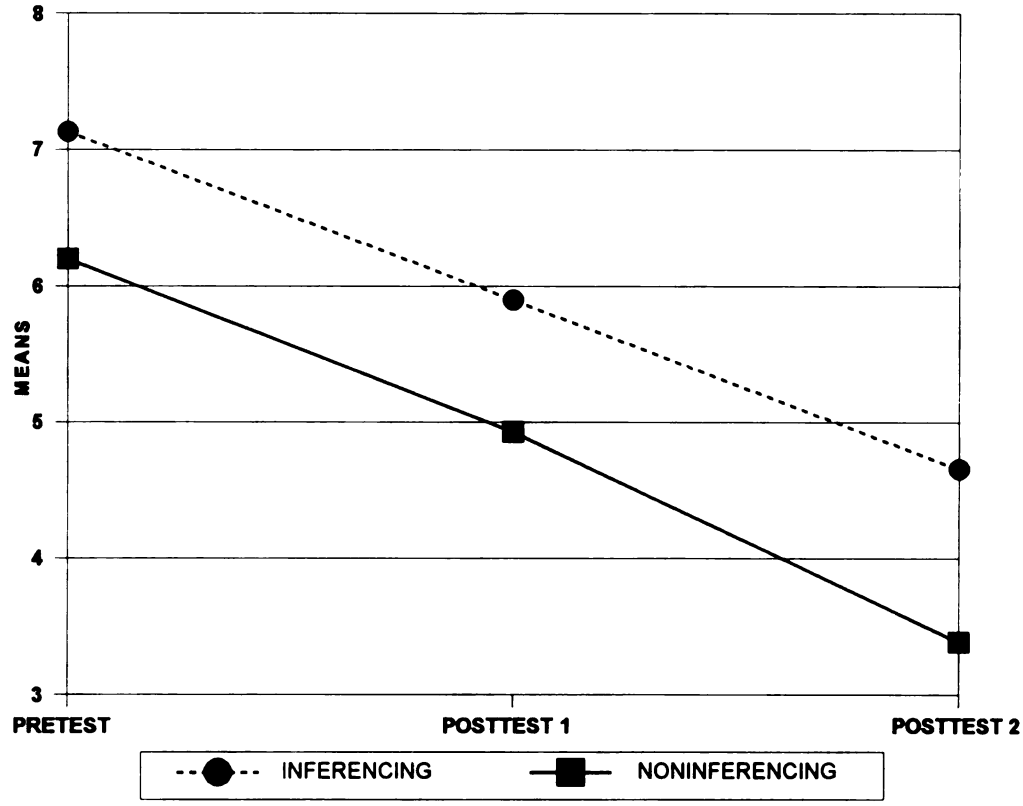

Figure 4.4. AJ Task Mean Error Scores

Similar trends can be seen in Figure 4.4 of the mean error scores of both groups on the AJ Task for each testing session. The mean error scores for both groups decreased at each testing session, with the noninferencing group again performing slightly better (that is, fewer errors) at each testing session. Additionally, the change in means across testing sessions was slightly greater for the noninferencing group. From Pretest to Posttest 1, the change in means was -1.3 for the noninferencing group versus -1.23 for the inferencing group; from Posttest 1 to Posttest 2, the change in means was -1.51 versus -1.24; and from

Pretest to Posttest 2, the change in means was -2.81 versus -2.47. Thus, the difference between the two groups' mean error scores steadily increased from .93 at the Pretest to .97 at Posttest 1 to 1.27 at Posttest 2.

4.2.2. Word Order Correction Task

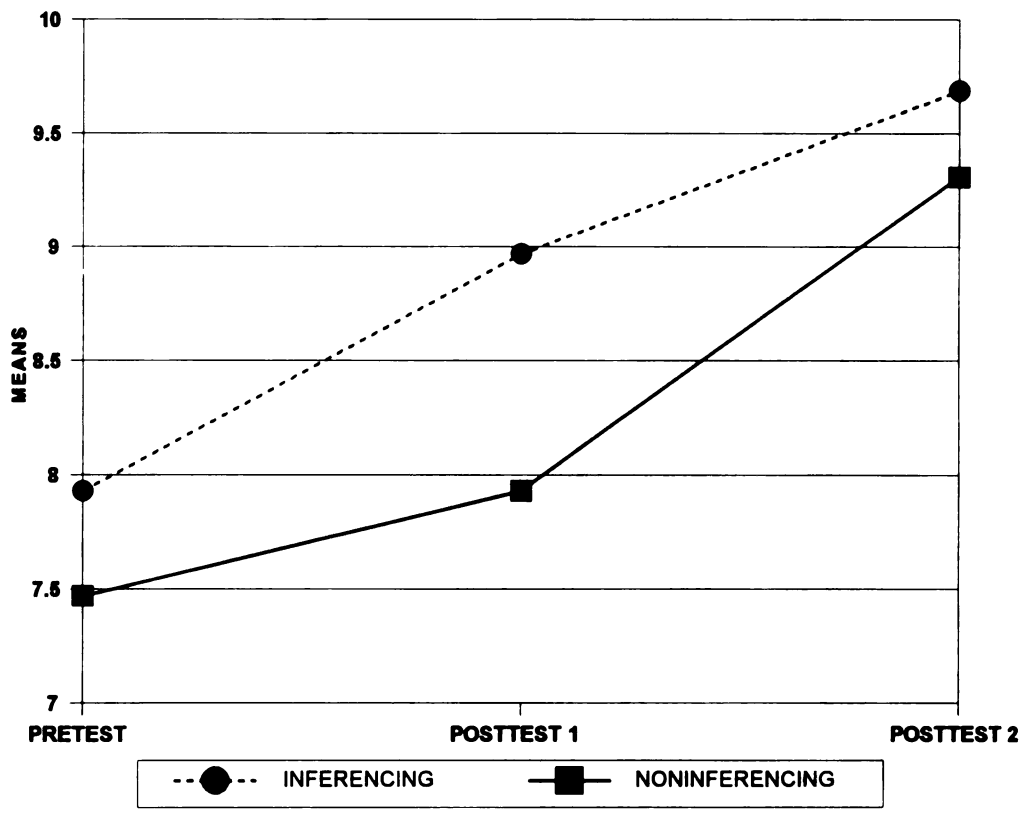

Figure 4.5. WOC Task Mean Correct Scores

Trends are somewhat reversed on the Word Order Correction Task. Figure 4.5 shows the mean correct scores of both groups at each testing session for this task. Both the inferencing and noninferencing groups showed improvement from Pretest to Posttest 1 to Posttest 2, with the inferencing group performing slightly better on each test than the noninferencing group. The change in means was slightly greater for the inferencing group

from Pretest to Posttest 1 (1.04 versus .46 for the noninferencing group). However, the noninferencing group showed a greater change in means from Posttest 1 to Posttest 2 (1.38 versus .72 for the inferencing group) and from Pretest to Posttest 2 (1.84 versus 1.76 for the inferencing group). Thus, the difference between the two groups' mean correct scores increased from .46 at the Pretest to 1.04 at Posttest 1 and then decreased to .38 at Posttest 2.

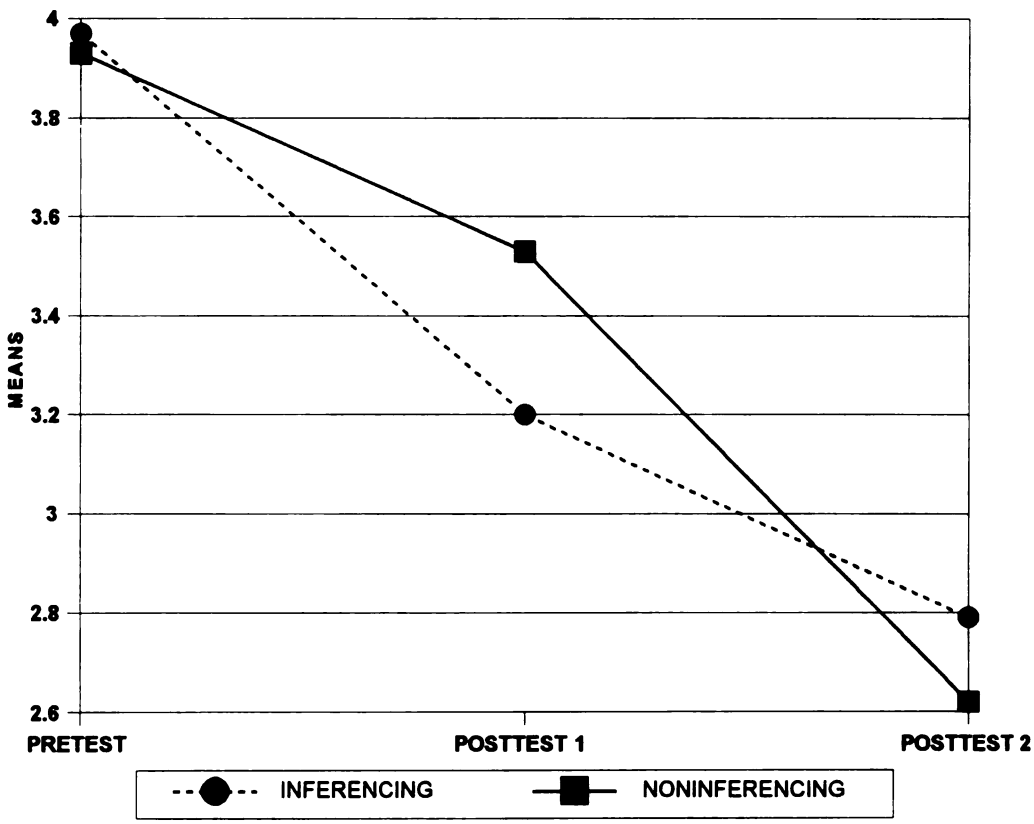

Figure 4.6. WOC Task Mean Error Scores

Figure 4.6 displays the mean error scores of both groups on the Word Order Correction Task at each testing session. Again, both groups showed improvement from Pretest to Posttest 1 to Posttest 2. While the change in means from Pretest to Posttest 1 was

slightly greater for the inferencing group than for the noninferencing group (-.77 versus -.4), the noninferencing group showed a slightly greater change in means from Posttest 1 to Posttest 2 (-.91 versus -.41 for the inferencing group) and from Pretest to Posttest 2 (-1.31 versus -1.18 for the inferencing group). Somewhat different trends between the two groups can be seen on the mean error scores of this task. While the mean error score of the noninferencing group was slightly lower than the inferencing group at the Pretest (a difference of .04), the noninferencing group's mean error score was .33 higher than the inferencing group's mean error score at Pretest 1. At Pretest 2, the noninferencing group's mean error score was again slightly below (.17) that of the inferencing group's mean error score.

4.2.3. Summary

An examination of these descriptive results indicates the following trends: 1) Both groups showed improvement over time on both the correct scores and the error scores on both tasks; 2) The noninferencing group's mean correct scores and mean error scores on each of the AJ tasks were slightly higher than those of the inferencing group; 3) The noninferencing group showed slightly greater improvement on the correct and error scores of the AJ task over time; 4) The inferencing group's mean correct scores on each of the WOC tasks were slightly higher than those of the noninferencing group; and 5) The inferencing group showed slightly greater improvement between the Pretest and Posttest 1 on both the correct score and the error score of the WOC task.

4.2.4. Word Order Correction Task Subscores

As described in Chapter 3, the correct and error scores on the Word Order Correction Task were subdivided in order to differentiate 1) active usage of the (in)correct word order

from passive acceptance of the (in)correct word order, and 2) acceptance and usage of French word order (SVAO) from acceptance and usage of English and French word orders (SVOA or ASVO).

4.2.4.1. Correct Subscores

Table 4.5 displays the pooled and group mean correct subscores and standard deviations at each testing session. In the discussion of the correct subscores, it must be pointed out that the subscores do not represent equal percentages of the total correct score. In other words, if all sentences are correct, the C1 (unchanged from SVAO) subscore is 25% of the total correct score; C2 (changed SAVO to SVAO) and C3 (changed SAVO to ASVO or SVOA) sentences are the same sentences and these subscores are 44% of the total correct score; the C4 (changed ASVO or SVOA to SVAO) subscore is 31% of the total correct score; the (C2 + C4) subscore could potentially be 75% of the total correct score.

Table 4.5 shows that both groups remained fairly consistent over testing sessions in their acceptance of the correct SVAO word order (subscore C1). If the mean subscores are examined as a percentage of a group's total mean correct score, the C1 subscore of the inferencing group represented 34% of their total mean at the Pretest, 33% at Posttest 1, and 31% at Posttest 2. The C1 subscore of the noninferencing group was slightly higher at each testing session and represented 37% of their total mean correct score at the Pretest, 40% at Posttest 1, and 34% at Posttest 2.

Table 4.5. Word Order Correction Task Correct Subscores

	PRETEST				POSTTEST 1				POSTTEST 2			
	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD
C1 k=4	2.69	1.09			3.04	.82			3.07	.91		
INF			2.67	1.04			2.97	.88			3.03	1.03
NON			2.73	1.18			3.20	.65			3.15	.53
C2+C4 k=12	2.96	2.58			4.2	3.28			4.76	3.49		
INF			2.97	2.52			4.60	3.55			5.07	3.76
NON			2.93	2.70			3.40	2.50			4.08	2.67
C3 k=7	2.13	1.97			1.38	1.65			1.74	1.71		
INF			2.30	1.88			1.40	1.69			1.59	1.65
NON			1.80	2.10			1.30	1.58			2.08	1.77
TOTAL k=16	7.78	2.50			8.62	3.02			9.57	3.42		
INF			7.93	2.39			8.97	3.26			9.69	3.71
NON			7.47	2.85			7.93	2.55			9.31	2.93

Recall that correct scores were subdivided as follows:

C1: Unchanged from SVAO
C2: Changed SAVO to SVAO
C3: Changed SAVO to ASVO or SVOA
C4: Changed ASVO or SVOA to SVAO

C2 and C4 are tallied together as both of these subscores show active usage of the SVAO French word order; C1 shows passive acceptance of this correct word order, and C3 shows usage of a word order which is also possible in English.

The groups show somewhat different trends on the second (C2 + C4) and third (C3) subscores. The inferencing group showed a slightly greater increase in their active usage of SVAO word order (C2 + C4), while the noninferencing group's usage remained somewhat consistent. Again, if the subscores are examined as a percentage of the total mean correct score, the (C2 + C4) subscore of the inferencing group was 37% of their total mean correct score at the Pretest, 51% at Posttest 1, and 53% at Posttest 2. While the noninferencing group's (C2 + C4) subscore percentage at the Pretest was slightly higher (39%) than the inferencing group's subscore percentage, the noninferencing group showed a smaller increase at Posttest 1 (43%) and again at Posttest 2 (44%). The (C2+C4) mean subscores of both groups at each testing session are shown in Figure 4.7.

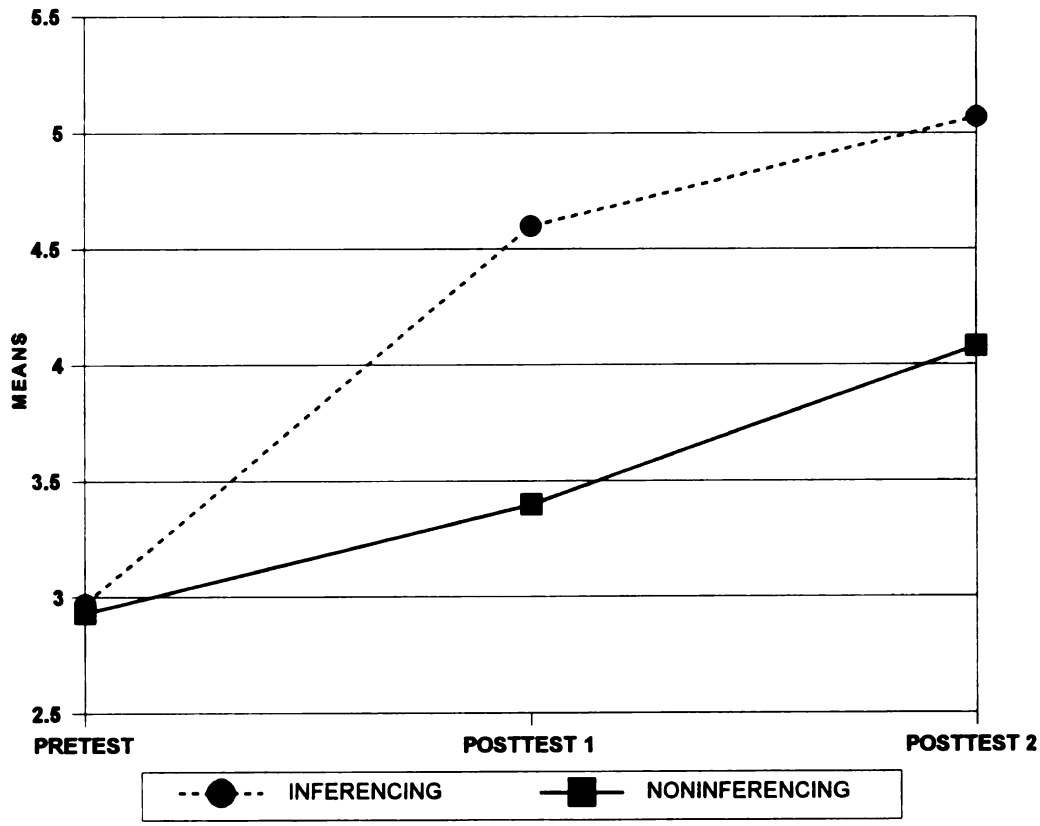

Figure 4.7. WOC Task Mean C2 + C4 Subscores

With respect to subscore C3, which reflects changes from the incorrect SAVO word order to a word order which is possible in both French and English (ASVO or SVOA), the inferencing group's mean C3 subscore represented 29% of their total mean correct score at the Pretest, dropped to 16% at Posttest 1, and remained at 16% at Posttest 2. The noninferencing group's C3 subscore represented slightly less of their total mean correct score at the Pretest (24%) than the inferencing group's percentage; it dropped to 17% at Posttest 1, then rose to 22% at Posttest 2.

4.2.4.1.1. Correct Subscore Summary

An examination of the mean correct subscores indicates the following trends: 1) While both groups remained fairly consistent in their acceptance of the correct word order (C1), this subscore represented a slightly higher percentage of the noninferencing group's total mean correct score than the inferencing group's subscore did of their total correct score; 2) The C1 subscores of both groups represented a higher percentage of their total mean correct score than that category does of the total correct score; 3) The inferencing group showed a slightly higher increase over testing sessions than the noninferencing group in their changes to the correct word order (C2 + C4); and 4) the inferencing group decreased over time (and maintained that decrease) in their usage of word order which is possible in both French and English (C3), while the noninferencing group decreased in their usage at Posttest 1 but then increased at Posttest 2.

4.2.4.2. Error Subscores

Error scores for the Word Order Correction Task were also subdivided in order to distinguish between passive acceptance of the incorrect word order and active changes to the incorrect word order. Table 4.6 displays the pooled and group mean error subscores and

standard deviations at each testing session. In the discussion of the error subscores, it must be pointed out that the subscores do not represent equal percentages of the total error score. In other words, if all sentences are incorrect, the E1 subscore is 44% of the total error score; the E2 subscore is 56% of the total error score;[3] and, the E3 subscore is 25% of the total error score.

Table 4.6 shows that the majority of errors made by both groups on the WOC task were of the same kind --- E1 errors, or passive acceptance of the incorrect SAVO word order. If the mean error scores are examined as a percentage of a group's total mean error score, the E1 subscores represent a higher percentage of each group's total mean error score than the E1 category does of the total error score. The E1 subscore of the inferencing group represented 60% of their total mean error score at the Pretest, 59% at Posttest 1, and 61% at Posttest 2. Thus, the E1 subscore of the inferencing group represented approximately the same percentage of their total mean error score across all testing sessions. The E1 subscore of the noninferencing group represented 66% of their total mean error score at the Pretest, rose to 76% at Posttest 1, and fell to 65% at Posttest 2. Therefore, at each testing session, the E1 subscore of the noninferencing group represented a slightly higher percentage of their total mean error score than the inferencing group's subscore did of their total mean error score.

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[3] The E2 subscore consists of any changes to the incorrect SAVO word order. Therefore, this subscore includes those 5 sentences in SVOA/ASVO word order and those 4 sentences in SVAO word order. If SVAO sentences are changed to SVOA/ASVO word order, this constitutes subscore E3.

Table 4.6. Word Order Correction Task Error Subscores

	PRETEST				POSTTEST 1				POSTTEST 2			
	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD	ALL $\bar{x}$	ALL SD	GRP $\bar{x}$	GRP SD
E1 k=7	2.47	2.08			2.16	2.19			1.69	2.06		
INF			2.40	1.94			1.90	2.04			1.69	1.93
NON			2.60	2.33			2.67	2.39			1.69	2.33
E2 k=9	.36	.77			.40	.99			.31	.77		
INF			.50	.89			.50	1.15			.38	.85
NON			.07	.25			.20	.54			.15	.53
E3 k=4	1.13	1.07			.76	.79			.74	.76		
INF			1.07	1.00			.80	.83			.72	.87
NON			1.27	1.81			.67	.7			.77	.42
TOT k=16	3.96	2.24			3.31	2.80			2.74	2.68		
INF			3.97	2.16			3.20	2.99			2.79	2.70
NON			3.93	2.55			3.50	2.53			2.62	2.84

Recall (Chapter 3) that error scores were subdivided as follows:

E1: Unchanged from SAVO
E2: Changed ASVO, SVOA, or SVAO to SAVO
E3: Changed SVAO to ASVO or SVOA

The E2 subscores (changes of SVOA, ASVO, or SVAO to SAVO) of both groups represented the smallest percentage of their total mean error scores, even though this category does not represent the smallest percentage of the total error score. The inferencing group's E2 subscores remained fairly consistent over testing sessions. It represented 13% of their total mean error score at the Pretest, 16% at Posttest 1, and 14% at Posttest 2. The E2 subscore of the noninferencing group represented 2% of their total mean error score at the Pretest, 5% at Posttest 1, and 6% at Posttest 2. Thus, at each testing session, the E2 subscore of the noninferencing group represented a smaller percentage of their total mean error score than the inferencing group's subscore did of their total mean error score. Furthermore, there is a slight increase in the E2 subscores of both groups from Pretest to Posttest 1; this increase is maintained at Posttest 2.

The E3 subscore (changes of SVAO to SVOA or ASVO) of the inferencing group, of course, remained consistent over testing sessions. It represented 27% of their total mean error score at the Pretest, 25% at Posttest 1, and 25% at Posttest 2. The E3 subscore of the noninferencing group represented 32% of their total mean error score at the Pretest, fell to 19% at Posttest 1, and rose to 29% at Posttest 2. Thus, at all testing sessions, the E3 subscore of the inferencing group represented approximately the same percentage of their total mean error score as that category does of the total error score. The E3 subscore of the noninferencing group was slightly higher than that of the inferencing group at the Pretest and Posttest 2; additionally, the E3 subscore of the noninferencing group at the Pretest and Posttest 2 represented a slightly higher percentage of their total mean error score than the E3 category does of the total error score.

4.2.4.2.1. Error Subscore Summary

An examination of the mean error subscores indicates the following trends: 1) The inferencing group remained consistent across testing sessions in the type of errors they were making; 2) For both groups, E1 type errors, or acceptance of the incorrect SAVO word order, represented a higher percentage of their total mean error score than the E1 category does of the total error score; 3) The E1 subscore of the noninferencing group represented a slightly higher percentage of their total mean error score than the inferencing group's E1 subscore did of their total mean error score; and 4) For both groups, the smallest percentage of errors consisted of E2 type errors, or active usage of the incorrect SAVO word order, even though the E2 category does not represent the smallest percentage of the total error score.

4.3. REPEATED MEASURES ANALYSIS OF VARIANCE

Repeated measures Analysis of Variance of the correct scores and the error scores on the Acceptability Judgment task and the Word Order Correction Task for both groups were run to determine any significant differences between and within groups across testing sessions.[4] Where significant differences between mean scores were found, post hoc Scheffé procedures were used to determine the source of the significant differences. A significance level of .05 is used.

4.3.1. Acceptability Judgment Task

The source table of the repeated measures ANOVA of the correct scores on the AJ Task is provided in Table 4.7.

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[4] In order to perform the repeated measures ANOVA, the data from the three subjects who were absent from Posttest 2 were eliminated from the analysis.

Table 4.7. Source Table AJ Task Correct Scores

Between Groups	df	SS	MS	F
INF	1	7.7	7.7	.33
ID(INF)	82	1885.0	22.99	
Within Groups				
OCC	2	246.92	123.46	*32.32
OCC x INF	2	1.43	.72	.19
ID(INF) x OCC	164	626.99	3.82	
Total	251	2768.04		

(*p<.01)

Differences between the inferencing and noninferencing groups on the correct scores of the AJ Task are not significant ($F(1,82) = .33$; $F_{crit} = 3.96$). There are significant differences between testing sessions (OCCasion) for both groups ($F(2,164) = 32.32$, $p < .01$; $F_{crit} = 3.89$). Scheffé tests show that the changes from Pretest to Posttest 1 and from Posttest 1 to Posttest 2 are not significant. The interaction between group and testing session is not significant ($F(2,164) = .19$).

The source table for the repeated measures ANOVA of the error scores on the AJ Task is provided in Table 4.8.

Table 4.8. Source Table AJ Task Error Scores

Between Groups	df	SS	MS	F
INF	1	40.62	40.6	2.48
ID(INF)	82	1344.11	16.39	
Within Groups				
OCC	2	124.87	62.44	*20.21
OCC x INF	2	1.06	.53	.17
ID(INF) x OCC	164	506.74	3.09	
Total	251	2017.30		

*p<.01

Differences between the inferencing and noninferencing groups on the error scores of the AJ Task are not significant ($F(1,82) = 2.48$). There are significant differences between testing sessions for both groups ($F(2,164) = 20.21$, $p < .01$). Scheffé tests show that the changes from Pretest to Posttest 1 and from Posttest 1 to Posttest 2 are not significant. The interaction between group and testing session is not significant ($F(2,164) = .17$).

4.3.2. Word Order Correction Task

The source table for the repeated measures ANOVA of the correct scores on the WOC Task is provided in Table 4.9.

Table 4.9. Source Table WOC Task Correct Scores

Between Groups	df	SS	MS	F
INF	1	5.63	5.63	.61
ID(INF)	82	763.37	9.29	
Within Groups				
OCC	2	62.11	31.06	*14.31
OCC x INF	2	2.49	1.25	.57
ID(INF) x OCC	164	356.06	2.17	
Total	251	1189.66		

*p<.01

Differences between the inferencing and noninferencing groups on the correct scores of the WOC Task are not significant ($F(1,82) = .61$). There are significant differences between testing sessions for both groups ($F(2,164) = 14.31$, $p < .01$). Scheffé tests show that the changes from Pretest to Posttest 1 and from Posttest 1 to Posttest 2 are not significant. The interaction between group and testing session is not significant ($F(2,164) = .57$).

The source table for the repeated measures ANOVA of the error scores on the WOC Task is provided in Table 4.10.

Table 4.10. Source Table WOC Task Error Scores

Between Groups	df	SS	MS	F
INF	1	.07	.07	.00
ID(INF)	82	763.37	7.43	
Within Groups				
OCC	2	27.44	13.72	*9.66
OCC x INF	2	1.68	.84	.59
ID(INF) x OCC	164	232.88	1.42	
Total	251	871.30		

*p<.01

Differences between the inferencing and noninferencing groups on the error scores of the WOC Task are not significant ($F(1,82) = .00$). There are significant differences between testing sessions for both groups ($F(2,164) = 9.66$, $p < .01$). Scheffé tests show that the changes from Pretest to Posttest 1 and from Posttest 1 to Posttest 2 are not significant. The interaction between group and testing session is not significant ($F(2,164) = .59$).

4.3.3. ANOVA Summary

Results of the repeated measures ANOVA reveal that there is no significant difference between the two groups on either the correct scores or the error scores of the AJ Task and the WOC Task. While both groups showed significant improvement from the Pretest to Posttest 2 in both their acceptance/usage of the correct SVAO word order and in their rejection/usage of the incorrect SAVO word order on both Tasks, the interaction between group and testing session (OCCasion) is not significant. In other words, there is not a significant difference between the groups in how they changed over time.

4.4. MULTIPLE REGRESSION

Multiple regressions were performed to determine the significant predictors of each of the outputs listed under A and B.[5]

A.

AJ Task: Correct Score	AJ Task: Error Score
1. Pretest	5. Pretest
2. ΔPretest-Posttest 1	6. ΔPretest-Post 1
3. ΔPosttest 1-Posttest 2	7. ΔPost 1-Post 2
4. ΔPretest-Posttest 2	8. ΔPretest-Post 2

B.

WOC Task: Correct Score	WOC Task: Error Score
9. Pretest	15. Pretest
10. ΔPretest-Posttest 1	16. ΔPretest-Post 1
11. ΔPosttest 1-Posttest 2	17. ΔPost 1-Post 2
12. ΔPretest-Posttest 2	18. ΔPretest-Post 2
13. Pretest Subscores	19. Pretest Subscores
14. ΔC1, Δ(C2+C4), ΔC3	20. ΔE1, ΔE2, ΔE3

The following variables were considered as predictors:

C.
1. Age
2. Previous years of French
3. Gender
4. Inferencing group[6]/Inferencing input score[7]
5. Adverb input score[8]
6. Raven's score

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[5] Assumptions of normality, homoscedasticity, and independence were not violated.

[6] The interval variable of inferencing input score and the nominal variable of inferencing group were found to be multicollinear; therefore, the inferencing input score was removed from the multiple regressions which considered the subjects as a single group.

[7] The interval variable of inferencing input score, which incorporated student absences, was used in the regressions on the inferencing group. This variable was not included in the regressions of the pretest.

[8] To ensure that class/teacher effect was being captured by the adverb input score, class sections were ordered on a nominal scale and a multiple regression was performed with classes as the predictor variables and adverb input score as the output. The Omnibus test proved significant ($p=.000$) and each predictor was significant (class 1 $p=.000$; class 2 $p=.001$; class 3 $p=.000$; class 4 $p=.008$), accounting for 36.5% of the variance in the adverb input score. It was concluded that class/teacher effect was captured in the adverb input score. The variable of adverb input score was not included in the regressions of the pretests.

Each of the outputs listed under A and B was run with all of the predictors listed under C, producing combined equations for each of the values. For each equation an Omnibus Test was performed to determine if the variability between predictors and outcome could be accounted for by chance alone. If the Omnibus Test proved significant, subsequent specific t-tests were performed on the predictors.

Regressions which combined all subjects (as a single output) were run first. Regressions on the inferencing group alone were then run to determine any significant predictors within this group which were not revealed by placing the groups together.[9] The primary concern is whether or not inferencing group/inferencing input, Raven's score (as a measure of inductive reasoning), and/or adverb input is/are significant predictors of the change in the correct or error scores on the AJ Tasks and WOC Tasks. I therefore report only the fitted equations in which any of these variables is a significant predictor of initial score or of change in score. The MINITAB printout of the fitted equations and their corresponding combined equations (that is, the trimming stages have been removed) is provided in Appendix J.

4.4.1. Acceptability Judgment Task

4.4.1.1. Correct Score

Raven's score is a significant predictor ($p=.04$) of the Pretest correct score on the AJ Task and accounts for 9.4% of the variance in the Pretest correct score. As Raven's score increases, the correct score is predicted to increase.

No significant predictors of the change in the correct score from Pretest to Posttest

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[9] Regressions could not be performed on the noninferencing group alone because of the small sample size ($n=15$).

1 or from Posttest 1 to Posttest 2 were found.

When the variables of age and Raven's score are considered together, the Omnibus test approaches significance (p=.056), and this model accounts for 13.7% of the variance in the change in the correct score from Pretest to Posttest 2. While the t-test on Raven's score is significant (p=.05, 9.0% of the variance), age is not a significant predictor (p=.083, 4.7% of the variance). When these predictors are considered separately, neither one is significant. As age increases, the change in the correct score is predicted to increase; as Raven's score increases, the change is predicted to decrease.

4.4.1.2. Error Score

No significant predictors of the Pretest error score or of the change in the error score on any of the tests were found.

4.4.2. Word Order Correction Task

4.4.2.1. Correct Score

No significant predictors of the Pretest correct score or of the change from Pretest to Posttest 1 on the Word Order Correction Task were found.

When the variables of adverb input and previous years of French are considered together, the Omnibus test proves significant (p=.028), and this model accounts for 16.8% of the variance in the change in the correct score from Posttest 1 to Posttest 2. However, while the t-test on previous years of French is significant (p=.037; 9.9% of the variance), adverb input is not (p=.064; 6.8% of the variance). As previous years of French and adverb input increase, the change in the correct score is predicted to increase. When each of these predictors is considered separately, only previous years of French approaches significance (p=.053) and accounts for 9.0% of the variance.

No significant predictors of the change in the correct score from Pretest to Posttest 2 were found.

4.4.2.2. Subscores

No significant predictors of the Pretest or of the change in the correct subscores on the WOC Task were found.

4.4.2.3. Error Score

Gender (p=.046) and Raven's score (p=.034) were significant predictors for the Pretest error score on the WOC Task. They account for 14.4% of the variance in the error score; gender accounts for 4.6% of the variance, and Raven's score accounts for 9.8% of the variance. An error score is predicted to be less for females than for males.[10] As Raven's score increases, the number of errors is predicted to decrease.

No significant predictors of the change in the error score from the Pretest to Posttest 1 were found.

When the variables of previous years of French and adverb input are considered together as predictors of the change in error score from Posttest 1 to Posttest 2, the Omnibus test proves significant (p=.001). However, only the variable of previous years of French is significant (p=.000), and the variable of adverb input approaches significance (p=.051). These predictors account for 31.3% of the variance in the change in error score, with previous years of French accounting for 24.2% and adverb input accounting for 7.1%. As adverb input and previous years of French increase, the change in the error score is predicted

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[10] However, recall that the database consisted of 45 subjects, 41 females and only 4 males.

to move from positive to negative.[11] Previous years of French alone is a significant predictor (p=.001) and accounts for 24.2% of the variance. However, adverb input alone is not a significant predictor (p=.129).

No significant predictors of the change in the error score from Pretest to Posttest 2 were found.

4.4.2.4. Subscores

The variables of gender (p=.035) and Raven's score (p=.001) are significant predictors of the variance in the Pretest E2 subscore (changes to SAVO) and account for 26.2% of the variance. Gender accounts for 2.5% of the variance in the E2 subscore, which is predicted to be less for females than for males. Raven's score accounts for 23.7% of the variance, and as Raven's score increases, the E2 subscore is predicted to decrease.

There was only one significant predictor of the change in the error subscores on the WOC task. Raven's score (p=.048) accounts for 8.8% of the variance in the change in the E2 subscore from the Pretest to Posttest 1. As Raven's score increases, the change in the E2 subscore is predicted to become positive.

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[11] Note that this is a change in the error score; therefore, a negative change from Posttest 1 to Posttest 2, for example, indicates fewer errors on Posttest 2 than on Posttest 1.

4.4.3. Inferencing Group[12]

4.4.3.1. Acceptability Judgment Task

4.4.3.1.1. Correct Score

No significant predictors of the Pretest correct score on the AJ Task were found.

The only significant predictor of the change in the correct score of the AJ Task was inferencing input (p=.048). This predictor accounted for 13.7% of the variance in the change from Posttest 1 to Posttest 2. As inferencing input increases, the change in the correct score is predicted to increase.[13]

4.4.3.1.2. Error Score

No significant predictors of the Pretest error score or of the change in error score from Pretest to Posttest 1 of the AJ Task were found.

Inferencing input is a significant predictor (p=.027) of the change in the error score from Posttest 1 to Posttest 2. This predictor accounts for 16.9% of the variance in the change. As inferencing input increases, the change in error score is predicted to become negative.

Inferencing input is also a significant predictor (p=.042) of the change from the Pretest to Posttest 2 and accounts for 14.5% of the variance in the change. As inferencing input increases, the change in the error score is predicted to become negative.

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[12] Given the small sample size (n=30), the strength of these results is questionable. The fitted equations were examined, and assumptions of normality, homoscedasticity, and independence were not violated.

[13] However, note that for subjects with an inferencing input score between 4 and 6, this is a negative change. That is, these subjects did worse on Posttest 2 than on Posttest 1.

4.4.3.2. Word Order Correction Task

4.4.3.2.1. Correct Score

No significant predictors of either the correct score or the correct subscores on the Pretest of the WOC Task were found. Nor were any significant predictors of the changes in these scores found.

4.4.3.2.2. Error Score

No significant predictors of the Pretest error score or of the change in the error score from Pretest to Posttest 1 and from Posttest 1 to Posttest 2 were found.

Gender (p=.029) and inferencing input (p=.016) considered together are significant predictors of the change in the error score from Pretest to Posttest 2 and account for 24.8% of the variance in the change. Gender accounts for 5.5% of the variance in the change of the error score, which is predicted to be less for females. Inferencing input accounts for 19.3% of the variance in change. As inferencing input increases, the change in the error score is predicted to become negative.

4.4.3.2.2.1. Subscore

The variables of gender (p=.049) and Raven's score (p=.001) are significant predictors of the Pretest E2 subscore and account for 38% of the variance in the subscore. Gender accounts for 3.6% of the variance in the subscore, which is predicted to be less for females. Raven's score accounts for 34.4% of the variance. As Raven's score increases, the Pretest E2 subscore is predicted to decrease.

4.4.4. Multiple Regression Summary

The results of the multiple regressions are summarized in Table 4.11. All significant predictors have been included. The predictors which are the focus of this investigation and

their relationship to the output are in boldface. Parentheses indicate that the Omnibus test and one predictor are significant, and one predictor approaches significance. Brackets indicate that the Omnibus test and one predictor approach significance, and one predictor is significant. Variables separated by a slash mark indicate that separately the variables are significant predictors, while together they are not. Variables connected with a plus sign indicate that both variables are needed for significance.

With respect to the variables which are the focus of investigation, Table 4.11 shows that adverb input, when combined with previous years of French, approaches significance as a predictor of the change in the correct and error scores of the WOC Task from Posttest 1 to Posttest 2 of both groups together.

Raven's score alone is a significant predictor of the change in the E2 subscore of the WOC Task from the Pretest to Posttest 1 of both groups together. This variable is also a significant predictor of the Pretest correct score of the AJ Task of both groups. When Raven's score is combined with gender, these variables are significant predictors of the Pretest E2 subscore of both groups and of the inferencing group alone. These variables are also significant predictors of the Pretest error score of the WOC Task of both groups. When Raven's score is combined with age, these variables approach significance as predictors of the change in the correct score of the AJ Task from the Pretest to Posttest 2 of both groups.

Inferencing input alone is a significant predictor of the change in correct score of the AJ Task from Posttest 1 to Posttest 2, as well as a predictor of the change in the error score of this task from the Pretest to Posttest 2 and from Posttest 1 to Posttest 2. When combined with gender, these variables are significant predictors of the change in the error score of the WOC Task from the Pretest to Posttest 2.

Table 4.11. Multiple Regression Results

WOC TASK		**PRETEST**	**PT 1 - PRE**	**PT 2 - PT 1**	**PT 2 - PRE**
C1	INF	YRS/AGE			
	BOTH			AGE	
C3	INF	MF			
	BOTH			YRS	
C2+C4	INF		YRS		
	BOTH				
TOT COR	INF		YRS/AGE	AGE	
	BOTH		YRS	YRS/AGE **(YRS+ADV)↑ Δ C↑**	
E1	INF	MF/YRS	YRS		
	BOTH	YRS	YRS	YRS	
E2	INF	**F+RAV↑ E↓**			MF
	BOTH	**F+RAV↑ E↓**	**RAV↑ +Δ**		MF
E3	INF BOTH				
TOT ERR	INF	MF	MF/YRS	AGE/YRS	**M+INF↑ -Δ**
	BOTH	**F+RAV↑ E↓**	MF/YRS	AGE/YRS **(YRS+ADV)↑ -Δ**	
AJ TASK					
CORR	INF		AGE	**INF↑ Δ↑**	
	BOTH	**RAV↑ C↑**	AGE		**[AGE+RAV] AGE↑ Δ↑ RAV↑ Δ↓**
ERR	INF			**INF↑ -Δ**	**INF↑ -Δ**
	BOTH	AGE			

MF=Gender
YRS=Previous Years of French
ADV=Adverb Input
INF=Inferencing Input
RAV=Raven's Score

4.5. TEACHER QUESTIONNAIRE

As discussed in Chapter 3, if one assumes that the maximum amount of input is received if exercises are conducted either as pairs or individually and then reviewed as a class, the highest adverb input score possible from the 8 day syllabus given to the teachers was 151. The results of the teacher questionnaire are as follows. Given how the lessons were taught by each of the teachers, the maximum possible adverb input score for a student in the noninferencing sections was 75; the maximum possible adverb input score for a student in one section of the inferencing group was 92 and the maximum possible score for a student in the other section was 90.

4.6. STUDENT QUESTIONNAIRE

The results of the student questionnaire are listed below.

1. Compare the first four weeks of French class with the last two weeks of class. Was there any difference in the way the class was conducted?
   _____ yes _____ no
   If yes, what was different? (lessons, amount of work...)

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Yes-13	Yes-14	Yes-6	Yes-4
No-0	No-3	No-5	No-0

Of the students who reported that the classes were different, students in the noninferencing classes reported that they had more work to do and were working at a faster pace. Students in the inferencing classes reported that they were participating in class more,[14] they had more work to do and that the work was a little more difficult, because "some of it was brain-teasers."

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[14] This is supported by the higher adverb input score which was computed for these classes based on the teachers' responses to the Teacher Questionnaire.

2. In the last two weeks, were you taught the passé composé? _____ yes _____ no
If yes, when is the passé composé used?

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Yes-10	Yes-17	Yes-11	Yes-4
No-3	No-0	No-0	No-0

All students reported the correct rule for use of the passé composé.

3. In the last two weeks, were you taught where adverbs are placed in a French sentence? _____ yes _____ no
If yes, where are the adverbs placed?

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Yes-5	Yes-8	Yes-5	Yes-3
No-6	No-9	No-6	No-1
"Indirectly"-2			

Approximately 50% of the students in the study reported that they had been taught the rule of adverb placement. The 5 students in class #3 who reported having been taught the rule of adverb placement gave the correct rule (SVAO). The 3 students in class #4 who reported having been taught the rule for adverb placement stated the rule was SAVO word order. Of the 5 students in class #1, 2 reported that adverbs are in ASVO or SVOA position, 1 reported that SAVO was the correct order, and 2 reported the correct SVAO order. The 2 students who reported having been taught the rule "indirectly" gave the correct SVAO order. Of the 8 students in class #2 who reported having been taught the rule, 5 gave the correct SVAO word order and 3 gave the incorrect SAVO word order.

4. Are your mistakes corrected in class? _____ yes _____ no
If yes, can you think of an example of when you were corrected?

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Yes-12	Yes-16	Yes-11	Yes-4
No-1	No-0	No-0	No-0
	"Sometimes"-1		

Students in all classes reported that they are corrected on their pronunciation and use of improper tense. No students reported being corrected on adverb placement.

5. Why are you taking French?

Approximately 50% of the students reported that French is a requirement for graduation; the other 50% reported that they are taking French because "it is important to know a foreign language."

6. Do you think French is easy or difficult to learn?

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Easy-4	Easy-3	Easy-5	Easy-1
Dif-9	Dif-8	Dif-6	Dif-1
	Medium-6		Medium-2

7. Do you think French and English are similar or dissimilar? Can you think of an example of how they are similar? Can you think of an example of how they are dissimilar?

Class 1	Class 2	Class 3	Class 4
INF	INF	NONINF	NONINF
n=13	n=17	n=11	n=4
Sim-0	Sim-0	Sim-0	Sim-0
Dissim-1	Dissim-0	Dissim-2	Dissim-2
Both-12	Both-17	Both-9	Both-2

The majority of students provided examples of what they found easy and difficult in French (question #6), even though they were not asked for examples. Interestingly, the examples given of what is easy in French corresponded with the examples in question #7 of

similarities between French and English; and the examples of what is difficult in French corresponded with the examples of the differences between French and English. However, the similarities do not outweigh or equal the differences in making French easy to learn as is evidenced in the minority of "easy" responses to question #6. Students find that cognates make French easy to learn and similar to English. Students find that gender, agreement, the use of definite articles, the verb tenses, and the "exceptions to rules" make French difficult to learn and dissimilar from English.

4.7. CHAPTER SUMMARY

In this chapter I have described the treatment groups in the study based on age, gender, previous years of French, adverb input, inferencing input, and Teacher and Student Questionnaires. I have provided a descriptive summary of the groups' performances on the AJ Task, the WOC Task, and Raven's SPM Test. I presented the results of the repeated measures ANOVA which was performed to determine any significant differences between and within groups across testing sessions on both tasks. Finally, I presented the results of the multiple regressions which were performed to determine any significant predictors of the group's performance on the tasks. These results are analyzed and discussed in Chapter 5.

CHAPTER 5
DISCUSSION

In this chapter I analyze the performance of the treatment groups, as revealed in the repeated measures ANOVA, in terms of the significant predictors,[1] as revealed in the multiple regressions. This analysis involves a comparison within and across groups with respect to performance on the two tasks and with respect to significant predictors.[2] I also analyze the performance of all subjects considered as a single group. I highlight four observations that can be made from the present study and discuss them based on their relevance to the goal of the present study---an investigation of the relationship between the use of indirect negative evidence and Second Language Acquisition. I discuss the caveats of the study and conclude the chapter with suggestions of future research that may help elucidate the topic of this dissertation.

Several preliminary observations with respect to the variables in this study are necessary. These observations are an attempt to tease apart the interaction, and at times conflict, between the variables. They also provide a partial framework within which the

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[1] As stated in Chapter 4, the variables of adverb input, inferencing input, and Raven's score are the main focus. However, other variables are discussed as they relate to the variables under question. Those regressions which indicate gender as a significant predictor will be regarded as spurious and not discussed, given that there were only 4 males out of a total of 45 subjects.

[2] It must be emphasized that the repeated measures ANOVA revealed no significant difference between groups on either the correct scores or the error scores of either task nor any significant interaction between group and testing session; finally, both groups showed significant improvement from the Pretest to Posttest 2. It may still be informative to analyze the trends of each group with respect to the significant predictors of performance.

analyses are placed.

5.1. CORRELATION

Recall from Chapter 4 that there is not a wide range between the ages of the subjects in the two groups.[3] It is therefore somewhat surprising that the variable of age was found so often as a significant predictor of performance. To determine if another variable was perhaps 'hidden' in the age variable, Pearson product-moment correlation coefficients were calculated for age, previous years of French, adverb input, inferencing input, and Raven's score.[4] The results are listed in Table 5.1.

Table 5.1. Pearson Product-Moment Correlation

	Age	Years Frn	AdvInput	InferInput
Years Frn	-.356*			
AdvInput	-.117	.089		
InferInput	.063	-.318*	.581**	
Raven's	.159	-.009	-.199	-.030[5]

(*p< .01; **p< .001)

Based on these correlations, in addition to the information shown in Tables 4.1 and 4.2, "Learner Variables," several generalizations can be tentatively made. First, note that

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[3] Subjects ranged from 17 to 20 years old, with one 22 year old.

[4] MINITAB's multiple regression analysis will determine if two variables are strongly correlated (see Footnote 6, Chapter 4); that is, the correlation must be .80 or greater. To uncover weak correlations, Pearson product-moment correlation was applied.

[5] Recall from Table 4 in Chapter 4 that the inferencing group did perform slightly better on the Raven's test. Additionally, this group received a higher adverb input score. The extremely weak negative correlations between Raven's score and inferencing input and adverb input shown here would indicate that those students who were not absent (and thus obtained higher inferencing input and adverb input scores) received lower Raven's scores.

there is a significant negative correlation between age and previous years of French study. In other words, younger subjects have had more years of French. Second, there is a significant negative correlation between inferencing input and previous years of French study. In other words, subjects in the inferencing group had fewer years of French than subjects in the noninferencing group. Finally, there is a significant positive correlation between adverb input and inferencing input. That is, subjects in the inferencing group received higher adverb input scores than subjects in the noninferencing group.

In effect, therefore, the variable of previous years of French is reflected in the variable of age. However, there must be an aspect to the age variable other than merely previous years of French study, because this latter variable was not found as a significant predictor in all the instances in which age was a predictor. It may be that the variable of age is also indicative of years of continuous French study. For example, it is not unreasonable to assume that the 17 year old subjects were taking French in high school immediately prior to enrolling in French 150 at MSU; however, the 20 year old subjects have been away from French for several years.[6] If this is in fact the case, two somewhat contradictory variables -- contradictory with respect to their relationship to a subject's improvement/performance -- are contained within a single variable. That is, an older learner who has had fewer years of French has more room, so to speak, for improvement; yet at the same time, this older learner has been away from French for a period of time, which may hinder performance.

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[6] Recall that French 150 is an intensive course in which first year French is covered in one semester. Therefore, students would not have enrolled in any other MSU French courses prior to taking French 150.

5.2. ACCEPTABILITY JUDGMENT TASK[7]

5.2.1. Correct Score

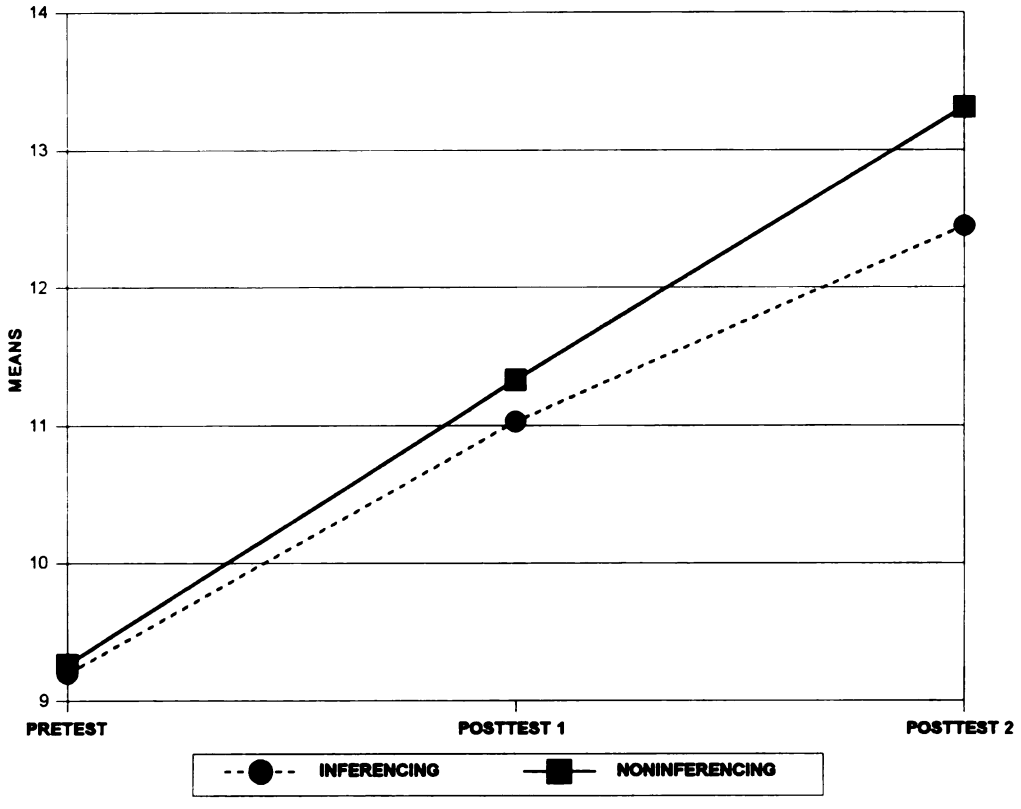

Figure 5.1. AJ Task Mean Correct Scores

Figure 5.1 shows that the groups performed similarly on the AJ Pretest with respect to their acceptance of SVAO word order and their rejection of SAVO word order. Of note is the relatively high mean correct score (+9 out of 18) of both groups. In other words, all subjects began with a relatively high knowledge of both the correct and the incorrect word orders. Raven's score was found to be a predictor of the Pretest scores for both groups. This finding supports the proposal that inductive ability somehow facilitates or is positively

[7] For convenience, the line graphs from Chapter 4 will be repeated here.

related to second language acquisition. Recall that the inferencing group performed slightly better on the Raven's test, which may explain why this group, even though they had fewer years of previous French study, obtained approximately the same Pretest scores as the noninferencing group.

From Pretest to Posttest 2, age and Raven's score taken together approached significance as predictors of the change in score; the older subjects showed greater change, and the subjects with higher Raven's scores showed less change. These results follow from the facts that 1) the older students had fewer years of French study, and therefore, in a sense, had more to learn; and 2) those students with higher Raven's scores obtained higher Pretest scores, and therefore, their change in scores was less; that is, they were initially closer to a perfect score of 18 than those subjects who received lower Raven's scores.[8]

During the treatment period, that is, by Posttest 1, the inferencing group performed roughly similarly to the noninferencing group. Age was a significant predictor of change during this time period. If one assumes that the age variable is representative, in part, of fewer years of French study, then again, it follows that those older students with fewer years of French showed greater change because they had more to learn. It is possible that the age predictor is also indicative of those older students who received higher Raven's scores (r=.159), suggesting that inductive ability (as measured by Raven's) is indirectly revealed as a predictor of change in correct score.

After the treatment period, the difference between the groups increases, with the

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[8] Here again, however, the variables seem to be in conflict. There is a weak positive correlation between Raven's score and age; that is, older subjects received higher Raven's scores. Older subjects are predicted to show greater change, while subjects with higher Raven's scores are predicted to show less change.

noninferencing group performing better. It may be that the more years of French study of the noninferencing group allowed them to continue on their path of improvement while the inferencing group fell behind after an initial improvement. Note that from Posttest 1 to Posttest 2, inferencing input was a significant predictor of improvement in the correct score. This may indicate that the treatment had a somewhat delayed effect for certain subjects in the inferencing group.

5.2.2. Error Score

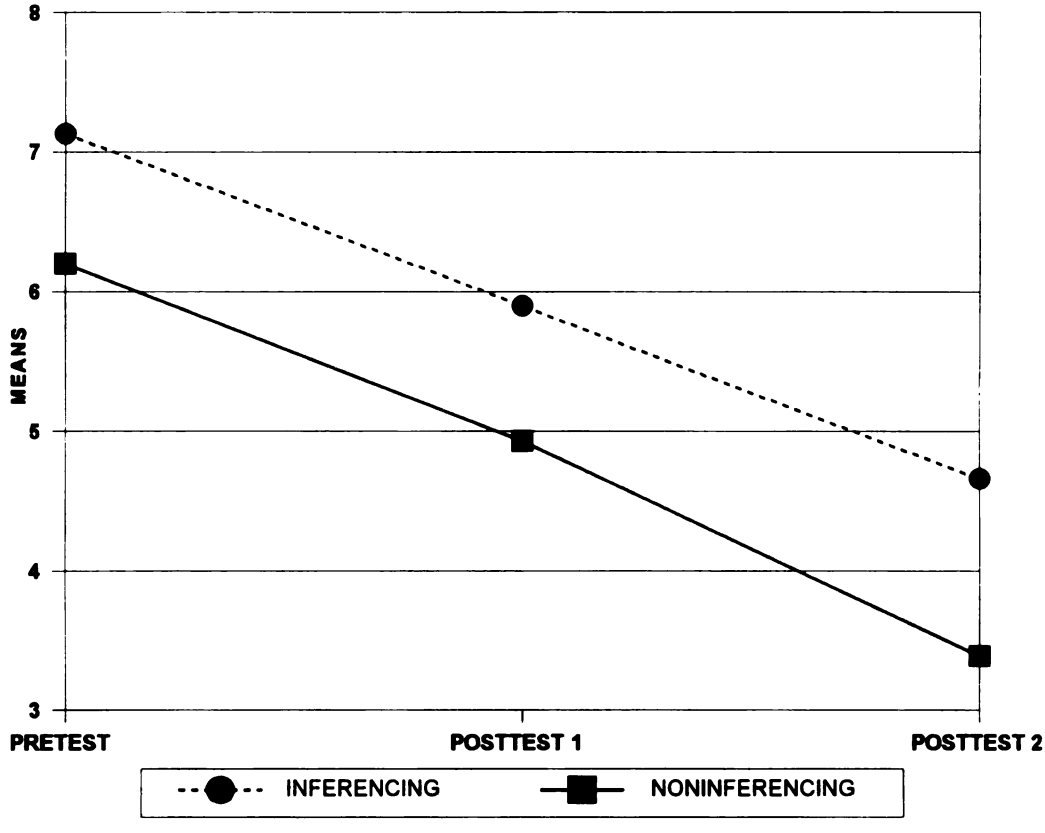

Figure 5.2. AJ Task Mean Error Scores

Figure 5.2 shows the mean error scores for both groups at each testing session. Consistent with the results of the AJ Pretest correct score, all subjects made relatively few

errors at the Pretest; at the beginning of the study, the students were neither rejecting SVAO word order nor accepting SAVO word order.

Among those variables of concern, no significant predictors of performance of both groups combined were found.[9] However, it is possible that the predictor of age is a reflection of not just older subjects but those older subjects who received higher Raven's scores, as mentioned in the discussion of the AJ Correct Score. Thus, Raven's score is indirectly revealed as a predictor of a lower AJ pretest error score.

Within the inferencing group, inferencing input was again (as with the AJ Correct Score) a significant predictor of this group's change from Posttest 1 to Posttest 2, as well as from Pretest to Posttest 2. As mentioned in the discussion of the AJ Correct score, a delayed effect of the treatment on this task as a whole may be evidenced. Additionally, if one assumes that previous years of French, though not found as a significant predictor, account for both the higher correct scores and the lower error scores of the noninferencing group, then it must be explained why the change in error score of the inferencing group, who has fewer years of French study, is roughly equivalent to that of the noninferencing group. It may be that while the apparent effect of inferencing input does not result in the inferencing group making as few errors as the noninferencing group, this input does contribute to the former group keeping pace with the latter.

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[9] Age was a significant predictor of the Pretest; older subjects are predicted to make fewer errors. This finding, coupled with the finding on the correct score from the Pretest to Posttest 1, indicates that, in general, older subjects were predicted to perform better on the AJ Task than they did on the WOC Task.

5.3. WORD ORDER CORRECTION TASK

5.3.1. Correct Score

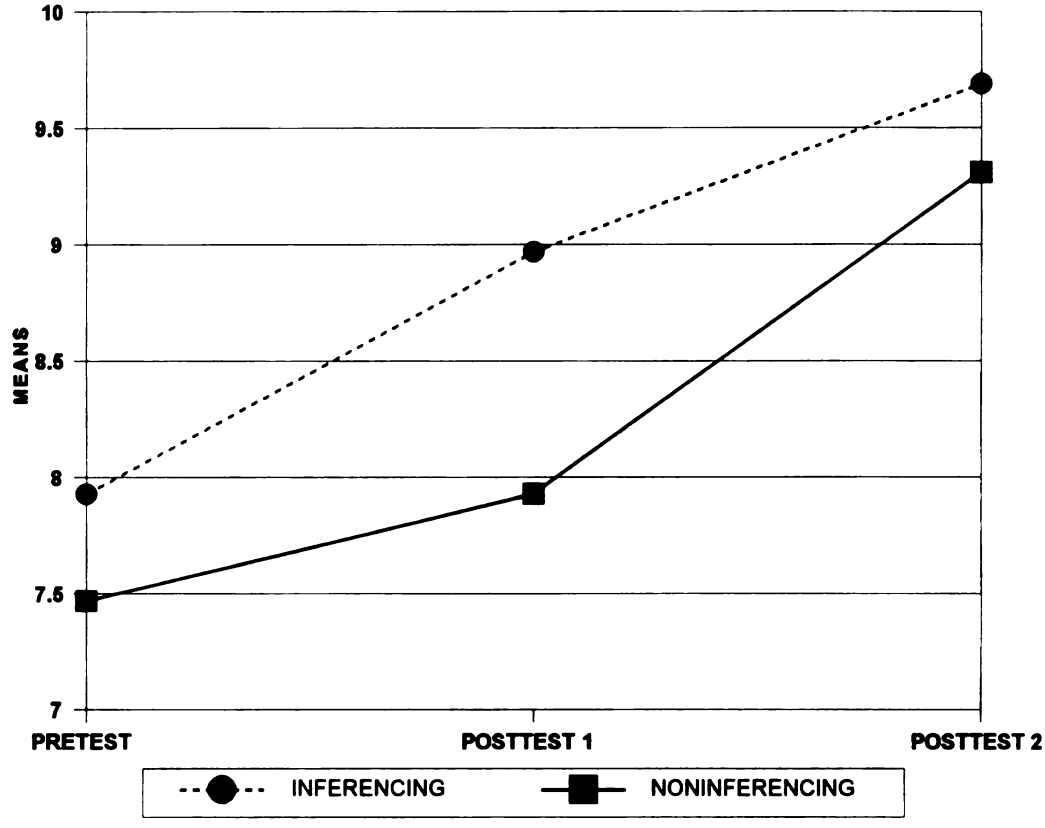

Figure 5.3. WOC Task Mean Correct Scores

Figure 5.3 shows the mean correct scores of both groups on the WOC Task at each testing session. Of note is the relatively high mean correct scores of both groups at the Pretest, supporting the finding from the AJ Task that the subjects were already familiar with the rules of adverb placement in French when the study began. This is the only score on which the inferencing group consistently scored higher than the noninferencing group, and as summarized in Chapter 4, a greater percentage of the inferencing group's mean correct scores on all tests consisted of changes to the correct SVAO word order rather than passive

acceptance of this word order. However, the difference between the groups is not significant and results of the multiple regression analysis indicate that this finding cannot be attributed to the inferencing input. The noninferencing group did exhibit slightly greater improvement from Pretest to Posttest 2, although again, the difference between the groups' performances is not significant.

As with inferencing input on the AJ Task, there seems to be a delayed effect of the treatment on this score. That is, adverb input and previous years of French study, taken together, are significant predictors of change from Posttest 1 to Posttest 2 for both groups combined. Interestingly, even though the inferencing group received a higher adverb input score, their change in means during this time period was almost half that of the noninferencing group. Additionally, adverb input was not found as a predictor of change for the inferencing group during this time period; rather, older subjects (or, as has been argued, subjects with fewer years of French) in the inferencing group are predicted to show less change in their correct scores. As with the AJ Task, this suggests that the noninferencing group was perhaps at an advantage as a result of more years of French study.

It should be noted that from the Pretest to Posttest 1 for the groups combined, not only is adverb input <u>not</u> a predictor of greater change but also <u>less</u> change is predicted during this time period for students with more years of French (thus, the lower change in mean of the noninferencing group). It was suggested in the discussion of the correct score on the AJ Task that the change was less for certain students because they were initially closer to a perfect score. This cannot explain the lack of change on the correct score of the WOC task, because no student received a perfect score on this task at Posttest 1. Perhaps an understanding of this finding can partially be found in the error scores of this task during this

time period.

5.3.2. Error Score

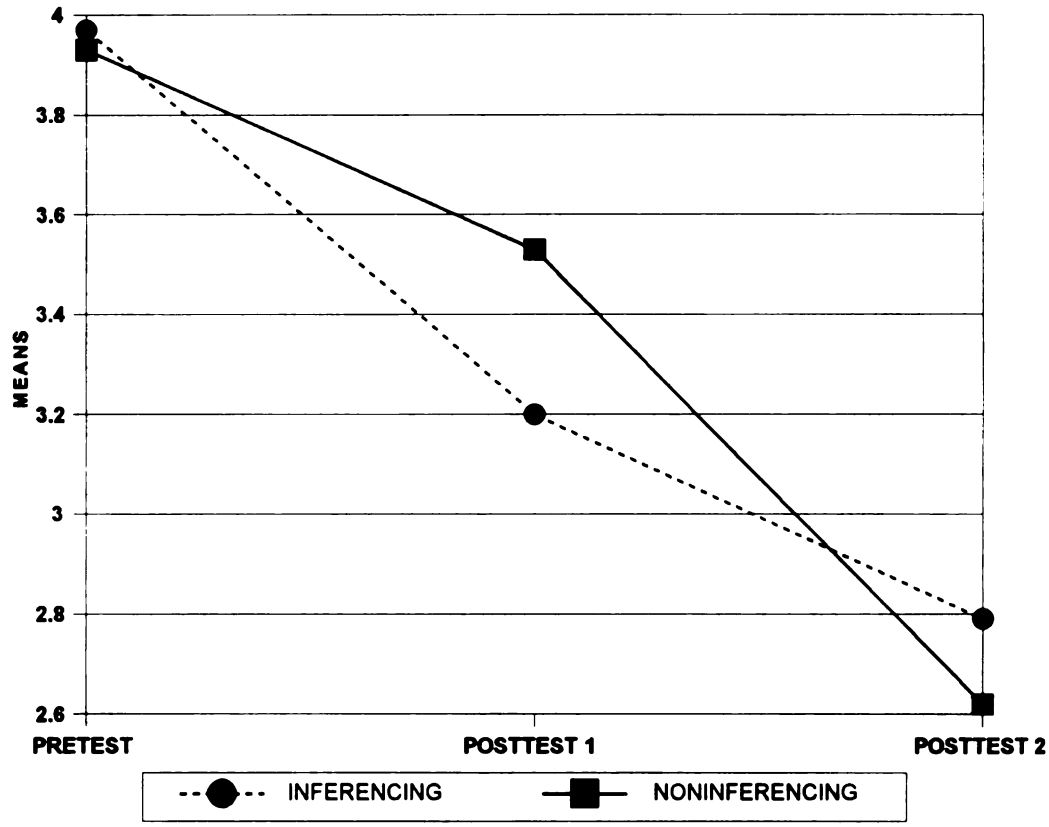

Figure 5.4. WOC Task Mean Error Scores

Figure 5.4 shows the mean error scores of both groups on the WOC Task at each testing session. At the Pretest, both groups are making a minimal number of errors (4 out of 16). Raven's score was found as a significant predictor of the initial error score; those subjects who obtained higher Raven's scores made fewer errors. Interestingly, Raven's score was also a predictor of a lower E2 Pretest subscore (changes to SAVO), which indicates elimination of active use of this structure from the grammars of the subjects. As with the AJ Pretest correct score, both groups received almost identical Pretest error scores on the WOC

task. Given that the noninferencing group had more years of French study, one would expect their Pretest error score to be lower than that of the inferencing group. However, as suggested in the discussion of the AJ Task, the inferencing group performed slightly better on the Raven's test, which may explain why they obtained approximately the same Pretest error score as the noninferencing group. This suggests that greater inductive ability may to some extent facilitate second language acquisition.

From the Pretest to Posttest 1, previous years of French was found as a significant predictor of change as it was on the correct score of this task during this time period. Recall the somewhat counterintuitive finding that those subjects with more years of French were predicted to show less improvement in their correct score. The prediction is the opposite on the error score; that is, those subjects with more years of French are predicted to show a decrease in error score from Pretest to Posttest 1. It may be then that the subjects are more 'focused' on the rejection of SAVO word order at the expense of using the correct SVAO word order. However, this still does not explain why the noninferencing group, who has more years of French, did not perform as well as the inferencing group on the error score from the Pretest to Posttest 1.[10]

From Posttest 1 to Posttest 2 adverb input and previous years of French are significant predictors of a decrease in error score for both groups combined. These variables were also significant predictors of a change in correct score during this time period; there, therefore, seems to be a delayed effect of the treatment, when combined with years of French, on this task as a whole. As with the correct score, there again is a greater influence

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[10] From the Pretest to Posttest 1, a higher Raven's score was a predictor of a positive change in error score. This finding is contradictory to what is found in other instances in which Raven's score is a predictor, suggesting that this is a spurious result.

of previous years of French than of adverb input, as revealed in the multiple regression; additionally, the noninferencing group, who has had more years of French study, had a change in means during this time period of more than twice that of the inferencing group, who had more adverb input. Furthermore, previous years of French and not adverb input was found as a significant predictor of change for the inferencing group alone, indicating a greater effect of the former variable.

Inferencing input was a significant predictor of overall change (Pretest to Posttest 2) for this group. It may be that their lack of French study, relative to the noninferencing group, was somehow compensated for by the inferencing input since this group's final error score was virtually the same as that of the noninferencing group's final score. Additionally, recall that inferencing input was also a significant predictor of the change in error score on the AJ Task from Posttest 1 to Posttest 2 and from the Pretest to Posttest 2. Recall also that a low error score indicates that the subject 'knows' what is not possible. That inferencing input was found as a predictor of the change in error score on both tasks lends support to the argument that the acquisition of the ungrammaticality of a structure may depend on the use of inductive inferencing.

5.4. OBSERVATIONS

In this section I highlight four observations that have been made regarding the influence of the variables on the performance of the two groups and suggest possible explanations for these observations, which are as follows: 1) There appears to be a delayed effect of the adverb input and inferencing input treatments on certain scores; 2) Previous years of French study have a stronger influence on performance than adverb input; 3) There is no significant difference between the performance or improvement of the two groups; and

4) Inductive ability, as measured by Raven's Standard Progressive Matrices, is to some extent an indicator of Second Language Acquisition ability. These observations, which are integrally and complicatedly related to each other and to the findings of this study, will be discussed in turn.

5.4.1. Adverb Input: A delayed effect or reanalysis[11]

The multiple regression analysis indicates that there is a delayed effect of the adverb input combined with previous years of French on the performance on both scores from Posttest 1 to Posttest 2 of the WOC Task by all subjects considered as a single group. For the purpose of this discussion, it may be useful to examine the change in means of both groups combined. This is listed in Table 5.2.

Table 5.2. WOC Task Change In Means Of All Subjects

	Post 1 - Pretest	Post 2 - Post 1	Post 2 - Pretest
Correct Score	.75	1.05	1.8
Error Score	-.585	- .66	-1.245

It seems somewhat counterintuitive that a greater change in means was obtained after Posttest 2 rather than immediately following the treatment period at Posttest 1.[12] I would

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[11] The apparent delayed effect of the inferencing input on the performance of this group on the AJ Task and on the error score of the WOC Task is discussed in the next section, "Unequal Variables." I suggest that the finding of inferencing input as a significant predictor may be better explained in terms of the interaction of the variables than in terms of reanalysis.

[12] Particularly in light of the fact that these results contradict those of Trahey and White (1993), who reported significant difference from the Pretest to Posttest 1 (but not from Posttest 1 to Posttest 2) on both scores of the WOC Task and on the correct score of the AJ Task. These differences were attributed to the adverb input flood. It may be that the authors' tallying procedures (see Chapter 4) resulted in 'inflated' correct scores. One is unable to determine what percentage of the correct score consisted of acceptance of the incorrect word order. It is possible that the 'true' correct score did not change significantly. Other factors which could account for the difference in findings include 1) Subjects in the Trahey and White study

like to suggest that a process of "reanalysis" (Gass, 1988) or "restructuring" (McLaughlin, 1990) is taking place.

Gass (1988) proposes that

> evidence for integrated knowledge can be seen in one of two ways. First there can be changes in the rule system that surface in the output. This is in fact what is typically thought of when one considers developmental changes. Second, there may be changes in the underlying system although there is no output change. Changes in the underlying systems with no surface manifestation are typically subsumed under the category of reanalysis. Within a second language context, we can think of reanalysis in two ways. First, a reanalysis of the underlying system may affect the *potential* for output . . . . Second, on a syntactic level, prefabricated patterns may be analyzed with, initially, little output change. (Gass & Selinker, 1994, p. 305)

On the WOC Task, then, it is possible that the adverb input and previous years of French facilitate a reanalysis of the underlying system from the Pretest to Posttest 1, or affect the potential for output change, which is not realized until Posttest 2.

Further support for reanalysis is provided by examining the predicted outcomes of the two scores from Pretest to Posttest 1 on the WOC Task with respect to each other. Recall that those subjects with more years of French were predicted to show less change on the WOC correct score from the Pretest to Posttest 1 and to show more (negative) change on the error score during this same time period. In other words, improvement in one area coincides with 'stagnation' in another area. Lightbown (1985, p. 177) suggests that

> [Restructuring] occurs because language is a complex hierarchical system whose components interact in non-linear ways. Seen in these terms, an increase in error rate in one area may reflect an increase in complexity or accuracy in another, followed by overgeneralization of a newly acquired structure, or simply by a sort of overload of complexity which forces a restructuring, or at least a simplification, in another part of the system.

As has been explained, a low error score is indicative of knowledge of what is

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were approximately ten years younger than subjects in the present study; and 2) Trahey and White had greater control over the classroom lessons (see the section "Caveats").

not possible. The correct score is indicative of knowledge of what is possible.[13] In the present study, a high correct score implies that SVAO word order has been incorporated into the learner's grammar. A low error score implies that SAVO word order has been eliminated from the learner's grammar, which, it has been argued necessarily results from noticing the absence of this structure in the target language. There is a qualitative difference between these aspects of grammatical development. Thus, there is a qualitative change (or restructuring) taking place on this task from the Pretest to Posttest 1 which may be attributed to previous years of French study.

5.4.2. Unequal Variables

To summarize thus far, we have seen that on the WOC Task

1) previous years of French study is a significant predictor of change on both scores from the Pretest to Posttest 1;

2) previous years of French study have a greater influence than adverb input on the change in both scores from Posttest 1 to Posttest 2;

3) inferencing input is a significant predictor of overall change in error score; and

4) the noninferencing group, who had more years of French, showed a greater overall change in means of both scores, though not statistically significant, than the inferencing group.

We have seen that on the AJ Task

5) previous years of French (as 'hidden' within the age variable) is a significant predictor of change in the correct score from the Pretest to Posttest 1;

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[13] The correct score, to some extent, also indicates knowledge of what is not possible. For example, if SAVO word order is changed to ASVO, one may assume that the student knows that SAVO is incorrect. To conclude, however, that SAVO has been eliminated from the grammar, the correct and error scores must be considered together.

6) inferencing input is a significant predictor of change in both scores from Posttest 1 to Posttest 2;

7) inferencing input is a significant predictor of overall change in the error score; and

8) the noninferencing group, who had more years of French, showed a greater overall change in means of both scores, though not statistically significant, than the inferencing group.

Observations 1, 2, 4, 5, and 8 suggest that the variable of previous years of French has a stronger influence on performance than adverb input.[14] Somewhat contradictorily, observations 3, 6, and 7 suggest that within the inferencing group, inferencing input has a stronger influence than either previous years of French or adverb input. These observations raise the following three questions. First, why is it that the adverb input did not have more of an influence? Second, if one assumes a strong effect of previous years of French, then why is it that this variable was not a 'clear'[15] significant predictor of performance on the AJ Task? Finally, if one assumes a strong effect of previous years of French, then why is it that this variable was not a significant predictor of change for the inferencing group? Or, the corollary to this, why is it that inferencing input was a significant predictor?

To answer the first question, the adverb input score must be reexamined. A two-tailed *t*-test shows that there is a significant difference ($t=3.18$; $p<.01$) between the two groups with respect to adverb input. However, the inferencing group received more

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[14] Recall also that there is a significant negative correlation ($r= -.318$; $p<.01$) between previous years of French and inferencing input. However, a two-tailed *t*-test reveals that there is not a significant difference ($t=2.14$; $p<.05$) between the two groups with respect to previous years of French. Given that the noninferencing group had approximately 6 months more of French study, which in some cases may make a substantial difference, might explain there slightly better performance.

[15] Recall that it was argued that the variable of previous years of French was 'hidden' in the age variable.

adverb input than the noninferencing group, which would imply, assuming a positive effect of the input, that the inferencing group should have outperformed the noninferencing group. This finding was not obtained. Perhaps the error is in the assumption that more adverb input, as quantified in the present study, is necessarily better.

As stated in Chapter 4, the adverb input score was designed as an attempt to quantitatively compare across class sections and to determine the different types of input, if any, provided to the students. It was assumed that if an exercise was done individually, or as pair work, students were attending to the task and receiving the input; whereas, with class activities, the possibility exists that students were not paying attention and thus not receiving the input. Therefore, students received a higher adverb input score if the activity was performed individually or in pairs.

The finding that adverb input did not have a stronger influence on the performance of the subjects lends support to Gass' (1988, p. 206) proposal that "pressures of conversational interaction may preclude sufficient analysis for the purposes of intake. In this case, the input (even though comprehended) may have no further role in acquisition." Thus, those students in the inferencing group may actually have been at a disadvantage as a result of the demands placed on them to perform. They were not given the time necessary to assimilate the new linguistic material; thus, the input did not become intake, which is a prerequisite to grammar formation.[16]

This time factor provides only a partial explanation, however, because if it were

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[16] Gass (1988) also proposes that prior linguistic knowledge is one of the factors mediating what becomes comprehended input and what becomes intake; the finding in the present study that previous years of French is a significant predictor of improvement on the WOC Task supports this proposal.

the case that a lower adverb input score (or less pair work) in fact facilitated the assimilation of new linguistic material, this would have been revealed in the multiple regression analyses. That is, a lower adverb input score would have been a significant predictor of change in scores. This was not the case. I would like to suggest that another variable, which is somewhat elusive and not easily quantified, is obscuring the findings.

Recall that it was concluded based on a multiple regression analysis that variations in teaching style, as measured by the way lessons were taught, were being captured in the adverb input score. Multiple regressions using test scores as the outputs and class sections as the predictor variables provide us with information of which class is predicted to perform better. Significant predictors are found for both scores on Posttest 2 of the WOC Task and on the correct score of Posttest 2 of the AJ Task. In each case, performance, from best to worst, is ordered as follows: class #3, class #1, class #2, class #4. For convenience, Table 4.2 is repeated here as Table 5.3.

Table 5.3. Learner Variables By Class Section

VARIABLE		Class1 INF n=13	Class2 INF n=17	Class3 NON n=11	Class4 NON n=4	ALL n=45
AGE	MEAN	18.77	18.35	18.27	18.25	18.44
	SD	1.30	.79	.79	1.29	.99
	MIN	17.0	17.0	17.0	17.0	17.0
	MAX	22.0	20.0	20.0	20.0	22.0
YEARS OF FRENCH	MEAN	3.40	3.51	4.6	2.83	3.68
	SD	1.04	.72	.56	.99	.97
	MIN	2.0	2.0	4.0	2.0	2.0
	MAX	5.0	4.3	5.6	4.1	5.6
ADVERB INPUT	MEAN	79.85	87.47	75.0	54.75	79.31
	SD	17.14	7.29	0.0	26.13	17.0
	MIN	37.0	73.0	75.0	17.0	92.0
	MAX	90.0	92.0	75.0	75.0	15.21
INFERENCING INPUT	MEAN	7.23	7.59			7.43
	SD	1.25	.49			.92
	MIN	4	7			4
	MAX	8	8			8

If it were the case that previous years of French is the 'strongest' variable, performance by class section would be as follows: 3, 2, 1, 4; if it were the case that less adverb input is the 'strongest' variable, performance by class section would be as follows: 4, 3, 1, 2; if it were the case that more adverb input is the 'strongest' variable, performance by class section would be as follows: 2, 1, 3, 4. None of these results is obtained. I believe that the rank order obtained reflects not only the complex interaction of the variables in this study but also indicates the influence of affective variables on students' reception of the input, regardless of input type. This in turn affects their performance. These variables may include student/teacher rapport, motivation, or anxiety.

Thus, in answer to the first question, "why is it that the adverb input did not have more of an influence?" I have suggested that the findings support the theoretical proposals

that 1) individual or pair work, which may ensure that students receive the input, does not necessarily lead to intake; and 2) other (affective) variables mediate between the type of input received and performance.[17]

I now turn to the second question, "if one assumes a strong effect of previous years of French, then why is it that this variable was not a 'clear' significant predictor of performance on the AJ Task?" This finding may appear somewhat surprising given that the variable of previous years of French is a significant predictor of performance on the WOC Task and, furthermore, that the WOC Task and AJ Task are intended to measure the same thing -- knowledge of adverb placement in French. However, notice that each task poses quite different demands on the students. The WOC Task requires that students manipulate the language; the AJ Task requires that students choose the correct sentence(s). In other words, different 'levels' of facility with the language are required to perform each of the tasks. Given the difference in the tasks, it therefore follows that different factors may be involved in the performance on each task. While more years of French study (or prior linguistic knowledge) may be required for performance/improvement on the WOC Task, other variables can, in a sense, compensate for a relative lack of prior linguistic knowledge and can facilitate performance on the AJ Task.[18]

What are these other variables? I believe the answer lies, in part, in the third

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[17] One can also speculate that those students who had more years of French study had received (more) negative evidence, or overt correction, on adverb placement while those students with fewer years of French study had not (or had received less negative evidence). Therefore, negative evidence (previous years of French) has more of an effect than only positive evidence (adverb input). However, one would still have to explain why this negative evidence was not of use on the AJ Task; that is, why previous years of French study was not a clear predictor of performance on this task.

[18] The implications of this finding, that is, the possibility that different abilities or skills may be operating in successful completion of the two tasks, will discussed in the section "Future Research."

question, "why is it that inferencing input was a significant predictor of performance?" A partial answer to this question has been alluded to in the responses to the first and second questions above. That is, I have suggested that pressures to perform may hinder input from becoming intake. No such pressures existed with the inferencing exercises; students worked alone and then the exercises were reviewed as a class. In other words, the way in which these exercises were taught contributed to their effectiveness. I have also suggested that the demands of each of the tasks are quite different and may require the use of different abilities or skills. The relationship of these abilities to each other, to task type, and to the exercises which were intended to utilize these abilities, while still nebulous, is suggested in the multiple regression analyses. While previous years of French are advantageous for improvement on the WOC Task, they are not a significant factor in improvement on the AJ Task. Conversely, while inferencing input is not a significant factor in improvement on the WOC correct score, it is beneficial for overall improvement on the error scores of both tasks and on the AJ Task correct score from Posttest 1 to Posttest 2. If one assumes that inductive reasoning was indeed employed in the inferencing exercises, these findings then suggest that these exercises facilitated the use of inductive reasoning on later linguistic tasks.[19] Moreover, it facilitates performance on tasks and during time periods when previous years of French appear to have little effect. Interestingly, inferencing input is a significant predictor of overall change in error score on both tasks. As has been argued, low error scores suggest that learners have noticed the absence of SAVO word order in the target language and, therefore, have eliminated this structure from their grammars. It may follow

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[19] Note, however, that this explanation does not account for the improvement of the noninferencing group.

then that inductive reasoning plays a role in noticing the absence of SAVO word order.[20]

Thus, in answer to the second question, "why is it that the variable of previous years of French was not a clear predictor of performance on the AJ Task?" and to the closely related third question, "why is it that inferencing input was a significant predictor?" I have suggested that 1) the WOC and AJ Tasks pose different linguistic demands, 2) the way in which the inferencing exercises were presented to the students facilitated this input becoming intake, and 3) the type of inferencing exercise facilitated performance on linguistic tasks in which previous years of French seem to have little effect.

In this section I have concentrated on the second observation that the variables in this study do not have equal effects on performance nor does a single variable have consistent or uniform effect on performance across tasks. I have explained these observations in terms of the complex relationships between type of input, teaching methodology, and task demands. These complex relationships contribute, in part, to the third observation -- there is no significant difference between the performance or improvement of the noninferencing and inferencing groups.

5.4.3. Inferencing versus Noninferencing

Results of the repeated measures ANOVA reveal that there is no significant difference between the performance of each of the groups on either task at each testing session, nor is there a significant difference between how the groups changed over time. However, results of the multiple regression analyses reveal that the factors or variables contributing to the change of each group on each task are not necessarily the same. That is

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[20] Additionally, previous years of French study do not guarantee the elimination of SAVO word order, given that this previous study probably consisted of positive and negative evidence but not exercises in inductive reasoning.

to say, one cannot necessarily conclude that because there is no quantitative difference between the improvement exhibited by each group that this improvement is characteristically similar.

While somewhat of an oversimplification, we have seen that at times (AJ Correct Score) fewer years of French study predict improvement; at other times (WOC Task) more years of French study predict improvement; at still other times (AJ Task and WOC Error Score) inferencing input predicts improvement; and finally, at times (WOC Task and AJ Correct Score) affective variables seem to be influencing improvement. I have suggested that the fluctuating influence of a variable is dependent on both the type of task and the relative presence of other variables. For example, it may be that the effect of inferencing input, only on the AJ Task, varies with previous years of French study.

We have seen that the groups differ with respect to adverb input, previous years of French, possibly affective variables such as student/teacher rapport, and, of course, inferencing input. Yet, in spite of these differences, the groups performed similarly with respect to their quantitative change over time. Additionally, the change of one group relative to the other cannot be adequately described in terms of their differences with respect to these variables. For example, while fewer years of French study predict change on the AJ Correct Score, the inferencing group, who had fewer years of French study, did not show greater change than the noninferencing group.

That the groups did differ with respect to certain variables is one of the major shortcomings of the study, which is discussed in the section "Caveats." As a result of this shortcoming, explanations of the performance of one group relative to the other become extremely speculative, and these speculations have been provided in the previous sections

of this chapter.

However, I would like to point out that it may still be informative to consider the performance of the inferencing group alone in terms of one of the variables which is the focus of this study, inferencing input. Even though this input did not result in this group's performance differing significantly from the noninferencing group, it did have a significant effect on the performance of the inferencing group on both scores of the AJ Task and on the WOC Error Score.[21] As has been discussed, if one assumes that the inferencing exercises utilized inductive reasoning, this finding lends support to the proposals that 1) inductive reasoning is a learning strategy which can be taught, and 2) inductive reasoning can facilitate performance on certain linguistic tasks.[22]

5.4.4. Raven's Standard Progressive Matrices

Further support for this second proposal is provided by the fourth observation - inductive ability, as measured by Raven's Standard Progressive Matrices, is to some extent an indicator of Second Language Acquisition ability.

We have seen that Raven's score is a predictor of the pretest correct score of the AJ Task, the pretest error score of the WOC Task, and the pretest E2 subscore (changes to SAVO) of the WOC Task. I have suggested that perhaps Raven's score is reflected in the age predictor of the pretest error score of the AJ Task and of the change in the AJ correct

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[21] It could be argued that the variable of inferencing input is merely an indicator of student attendance. However, if this were the case, one would need to explain why adverb input, in which absences were also incorporated, was not a predictor of performance.

[22] If one assumes that the noninferencing group was at a slight advantage as a result of the fact that they had more years of French, and one assumes no effect of adverb input, it must be explained why the inferencing group exhibited progress similar to the noninferencing group. One can speculate that the inferencing input, coupled with the fact that the inferencing group performed slightly better on the Raven's test, facilitated their improvement. However, this is pure speculation at this point.

score from the Pretest to Posttest 1. I would like to point out two possible implications of these findings.

First, that Raven's score was found as a predictor on these particular tests suggests that a high Raven's score indicates that SAVO word order has been eliminated from the learner's grammar. Recall that the correct score of the AJ Task reflects error-free usage. That is, in order for a correct score to be counted on an SAVO-SVAO pair, for example, subjects had to choose only SVAO. In other words, the correct score indicates both acceptance of SVAO and rejection of SAVO. Additionally, a high Raven's score is not only a predictor of a lower error score on the WOC Task, but also of those errors (E2) which consist of changes to SAVO word order. This finding appears to support the proposal that there is a positive relationship between the use of inductive reasoning and the acquisition of the ungrammaticality of a structure, which, I have argued, depends on noticing the absence of this structure in the target language.

Second, unlike the variable of previous years of French study, the predictor of Raven's score crosses tasks.[23] Recall that in the section "Unequal Variables" I suggested that the effect of certain variables depends, in part, on the demands of the task. This appears not to be the case with Raven's score, which is a clear predictor of the error score on the WOC Task and of the correct score on the AJ Task. This finding suggests that relative to the other variables in the study inductive reasoning has a somewhat global and 'steadfast'[24] effect on Second Language Acquisition.

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[23] This is also the case with the variable of inferencing input.

[24] Steadfast in the sense that this variable is not as easily affected by other variables as, for example, adverb input seems to be.

5.4.5. Summary

In this section I have focused on four observations gleaned from the present study: 1) There appears to be a delayed effect of the adverb input and inferencing input treatments on certain scores which may be explained in terms of reanalysis; 2) There is an unequal effect of the variables in this study on a subjects's performance which may be explained in terms of task demands, teaching methodology, and type of input; 3) There is no significant difference between the performance or improvement of the two groups which may be explained partially in terms of (2) above and partially in terms of the differences between groups with respect to these variables; and 4) Inductive ability, as measured by Raven's Standard Progressive Matrices, is to some extent an indicator of Second Language Acquisition ability which is suggested by this variable predicting the scores on certain tasks.

The strength of these observations must be judged in light of the weaknesses of this study, some of which have been alluded to in previous sections and are more fully discussed in the following section.

5.5. CAVEATS

In this section I discuss the methodological shortcomings of this study in terms of their possible roles in the following results:[25] 1) There was not a significant change in scores on either task for either the inferencing group or the noninferencing group immediately following the treatment period, suggesting no effect of treatment; 2) There was not a significant difference in the performance or improvement on either task between the two groups; and 3) There was no clear and consistent predictor of performance across tasks

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[25] Note that a single factor, for example small *n*-size, probably plays a role in all three findings. For ease of discussion, however, the flaws are categorized according to the result on which they may have the greatest effect.

and time.

5.5.1. No Immediate Effect of Treatment

One of the factors contributing to this result may be the length of time of the study. Students received the adverb input and the inferencing input over a two week period, or eight class sessions. Additionally, these sessions did not consist exclusively of adverb exercises. Furthermore, the inferencing exercises consisted of approximately 15 minutes of each class period. Recall that Valian (1990a, 1990b), Saleemi (1990, 1992), Archibald (1993), and Gass (1988) all suggest a learning procedure which relies on the frequency with which an item occurs or does not occur in the input. It may be that as a result of the short duration of the treatment period, neither the "frequency threshold" nor the "time threshold" (Saleemi, 1992, p. 128) was crossed.

Related to the time factor is the fact that the subjects already knew the rule of adverb placement at the beginning of the study, as revealed in the high pretest correct scores and the low pretest error scores. This is related to the time variable because frequently, especially with subjects of this age, one finds marked improvement initially and then slower progress in the later stages of acquisition. Perhaps more concentrated work is required for these students. And, of course, the input would have no effect on the improvement of those students who initially received perfect scores.[26]

Related to the fact that the students were relatively proficient in adverb placement is the issue of sample-size, and more specifically the randomness of the sample. While all the students received the input, students volunteered to take the tests. That is, the test scores

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[26] Additionally, a more concentrated and longer treatment period may result in more pronounced differences between groups.

are of students who volunteered to come on their 'off-day' to participate in the study. In other words, the results are representative of motivated students and not necessarily of all students at this proficiency level.

Finally, given that the students were already familiar with adverb placement in French, one can suppose that they were equally familiar with the fact that adverbs are used infrequently in French, relative to their use in English.[27] To a certain extent, therefore, the adverb input was unnatural. On the one hand, one might expect this fact to make the input more salient to the students, assuming they recognize the awkwardness of it. On the other hand, however, this overuse may result in students immediately 'tuning out' the input.

5.5.2. No significant difference between groups

As discussed in the section "Unequal Variables," perhaps the two most confounding variables in this study are 1) the groups differed with respect to previous years of French, and 2) four different teachers participated in the study resulting in, among other things, nonuniform adverb input across class sections.

Because the prior linguistic knowledge of both groups was not equivalent, and specifically because the noninferencing group possessed more years of French, it is difficult to separate the effect of treatment from the effect of prior linguistic knowledge. In other words, it cannot be asserted that there was no effect of inferencing input and that therefore the groups performed similarly, however likely this assertion may be.

Any comparisons made between the performance of each group are further complicated by the fact that four different teachers participated in the study. The most

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[27] Adverbs are not formed as easily in French as they are in English; thus, many English adverbs must be expressed as adverbial phrases in French (Darbelnet, 1977). For example, *urgently* would be expressed as *de toute urgence*; *contentedly* would be expressed as *d'un air satisfait*.

obvious result of the fact that the variable of teacher was not held constant is the inconsistent adverb input provided to students in each of the four sections. As discussed previously, there is also the issue of the effect on students' performances of affective variables stemming from such sources as teacher\student rapport, teaching style, and/or teaching methodology.

Finally, it must be pointed out that after the treatment period, between Posttest 1 and Posttest 2, all students were taught the rule of adverb placement. While the teachers reported that they merely presented the rule and did not provide any follow-up exercises, it is still difficult to determine the effects of this explicit instruction on Posttest 2. Even though it is possible that learning the rule may account for the fact that there was no significant difference between groups from Posttest 1 to Posttest 2, one is still left with the question of why there was no significant difference between groups from the Pretest to Posttest 1. The methodological shortcomings of the study mentioned previously may, in part, explain this finding.

5.5.3. Predictors

As discussed above, the fact that the groups differed both initially and during the treatment period (with respect to variables which should have been held constant), possibly confounded the effects of the treatment which otherwise would have resulted in changes within groups and/or differences between groups. The effects of these confounding variables are clearly evident in the multiple regression analyses in which no clear and consistent predictor was found across time and tasks.[28] One of the most problematic issues is the fact that there was a significant negative correlation between age and previous years of French,

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[28] Of course, as has been discussed, it is possible that different variables had different effects at different times on different tasks.

thus making it difficult to separate these two variables and definitively attribute change/improvement to one or the other variable. This naturally leads one to question if other factors were 'hidden' in the defined variables.

Multiple regression analyses proved to be both an advantage and a disadvantage in the present study. The power of this statistical analysis allowed me to discover predictor variables in an extremely small sample size. Yet, it is just this power which is also a disadvantage. For example, recall that gender was found as a significant predictor of change on several tasks, and yet, there were only four males out of 45 subjects. Therefore, while it may be tempting to do so, the findings obtained here cannot be generalized beyond this study.

5.6. IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In this section I first suggest alterations in methodology which may help to remedy the shortcomings discussed in the above section and which would be beneficial to future studies. I then note SLA issues, implicated in the findings of the present study, which deserve further attention and which future research may help to explicate.

This study would have benefitted (at most, in the findings themselves and at least, in the strength of assertion of the current findings) had two preliminary procedures been taken. First, it is absolutely essential to pretest subjects on the structure under investigation. Had the subjects been pretested on adverb placement, I would have avoided the pitfall that subjects were already relatively knowledgeable of the rule by choosing a lower level French class. Even though French 150 is the level at which this grammatical structure is taught, the students' had obviously covered this structure in their previous years of French study. Second, background questionnaires should be administered to subjects before the onset of

the study. If this had been done, I would have discovered that 1) subjects possessed a relatively large number of previous years of French; 2) the groups were not identical with respect to previous years of French; and 3) there was a significant negative correlation between age and previous years of French. Knowing these facts may not have altered the present study given that 1) it was not possible for me to manipulate the groups in any way (e.g., move a student from one class section to another); 2) the *n*-size was so small that I was hesitant to eliminate subjects (e.g., those with more years of French); and 3) there were only four sections of French 150, and therefore, it was not possible to add more subjects to the study. However, future studies which are not limited by such constraints would benefit from the incorporation of a pre-study background questionnaire.

Five modifications to the study proper would have made for 'cleaner' research and perhaps have resulted in clearer results.[29] First, the sample size should be larger, which would allow for greater generalizability of results and perhaps reveal differences both between groups and between predictors that are not immediately evident in the present data base. Second, the treatment period should be both longer and more concentrated. Particularly with respect to inferencing input, it is unreasonable to suppose that eight class sessions will have a significant effect on student performance. Third, all class sections should be taught by a single teacher, which would control for the confounding variable(s) associated with teaching style. Fourth, the tests should be administered to all students during the scheduled class period, which would partially increase the randomness of the sample. Finally, a class which receives no adverb input should be included in the study. This would

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[29] These modifications are a natural consequence of the caveats which have already been discussed. Therefore, the implications of these modifications will not be elaborated on as they have already been implicitly discussed.

perhaps allow one to determine that there indeed is no effect of adverb input treatment, as the findings in the present study generally suggest.

I believe that the four observations made from this study (see "Observations") are of use in that they highlight the need for the methodological recommendations mentioned above and they have specific implications for future research.

First, that there was no significant difference between groups and that there was an apparent delayed effect of both adverb input and inferencing input emphasize the need for more longitudinal studies in SLA. A long term study, with periodic testing, would perhaps reveal the cumulative effect of treatment in addition to allowing time for differences between treatment and control groups to emerge. Such studies may provide a more detailed understanding of the relationship between learner variables, type of input, and even the length of time between input and effect.

Second, the fact that adverb input, as quantified here, did not have more of an influence brings into question the effectiveness of the communicative approach, which is dominant in many current foreign language textbooks. That those students who performed more pair work were not predicted to show greater improvement lends support to recent investigations (VanPatten & Cadierno, 1993; Harley, 1993; Spada & Lightbown, 1993) which are reexamining the important role of explicit instruction in SLA.

Third, the fact that different predictors were found at different times on different tasks suggests that further investigations of task type are in order. While much recent work (Crookes & Gass, 1993) has looked at the effects of task type on performance, and in turn how that output affects acquisition, the findings of this study suggest that more research is needed which investigates the relationship between the specific demands of the task and

specific learner variables such as prior linguistic knowledge and inductive ability which respond to those demands.

Finally, the fact that Raven's Standard Progressive Matrices was a significant predictor of the WOC pretest error score and the AJ pretest correct score and that inferencing input was a significant predictor of the overall improvement on both scores of the AJ Task and on the error score of the WOC Task indicate that further investigations into the role of inductive reasoning in SLA is justified. The former finding supports, to some extent, proposals made by Carroll (see Chapter 2, Footnote 8) that inductive reasoning plays a role in foreign language aptitude.[30] The latter finding supports, to some extent, proposals made by Neufeld (see Chapter 2, Footnote 8) and those working within a learning strategy paradigm (see Chapter 2) that inductive inferencing is a strategy which can be partially developed through the instructional use of embedded and explicit exercises.[31] Further research into the question of the roles of inductive reasoning and learning strategies in SLA would benefit from studies which control for the variable of Raven's score (if one assumes this to be a valid and reliable measure of inductive ability) and keep the positive and lack of negative evidence constant across groups; learning strategy instruction would then be provided to groups with exclusively low or high Raven's scores, and then the performance of these various groups would be compared. For example, would a group with high Raven's scores show improvement similar to a group with high Raven's scores which had received learning strategy instruction? Would a group with low Raven's scores which had received

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[30] Assuming all things being equal, those students with higher Raven's scores have achieved a higher level of proficiency with respect to adverb placement as measured by the pretest AJ and WOC Tasks.

[31] Assuming that the embedded inferencing exercises indeed require the use of inductive reasoning which is then utilized in the acquisition of adverb placement.

learning strategy instruction show improvement similar to a group with high Raven's scores which had received the same instruction? The observations made with respect to Raven's SPM and inferencing input indicate that such future research warrants attention.

The tentative findings of this study, taken together, underscore the conundrum of what type of instruction at what point in study is most effective for a specific grammatical structure. In other words, more issues have been raised than have been resolved. Future research which draws on the merits of this study and corrects its defects may help to clarify some of these issues.

5.7. CONCLUSION

The purpose of this dissertation has been to investigate the relationship between the use of Indirect Negative Evidence (INE) and the acquisition of the ungrammaticality of Subject-Adverb-Verb-Object (SAVO) word order in French by native speakers of English. In order to investigate the use of INE, I argued that its use is analogous to the use of inductive inferencing, and therefore, the use of INE could be investigated via an investigation of the use of inductive inferencing.

Manifested in the results of this study is the now well-known fact of the necessary interrelatedness of the variables involved in SLA: input, tasks, prior linguistic knowledge, grammatical structure, teaching style... Just as one of these variables cannot be examined in isolation from the others, so too, the cognitive processes which both affect and are affected by these variables must be considered. I have provided theoretical support for the proposal that the use of INE or inductive inferencing is one such cognitive process. While the results of the current study do not conclusively show that the use of INE is operative in or facilitates the acquisition of the ungrammaticality of SAVO word order in French by

native speakers of English, they do suggest that the use of inductive inferencing plays a role in SLA. Future research in this area is needed to determine more precisely the nature of that role.

APPENDICES

APPENDIX A

BIOGRAPHICAL COVER SHEET

Number_____

Date_____

Teacher's Name_____

Age_____

Gender_____

Nationality_____

What is your major?_____

How long have you been studying French?
_____years _____months

Have you ever lived in a French-speaking country?
_____yes _____no If yes, how long?_____years _____months

Do you know any languages other than English?
_____yes _____no If yes, which language(s)?_____

What language(s) are spoken in your home? _____

When you were growing up, did you speak any languages other than English? _____yes _____no

Do you consider yourself bilingual? _____yes _____no

APPENDIX B

SUMMARY OF LESSONS FROM *BONJOUR, ÇA VA?*

(Rochester et al., 1991, pp. vi-ix)

October 1-October 4:
"Le passage des saisons"

Vocabulaire:	Les saisons et le temps: Quel temps fait-il?
	Qu'est-ce que je vais mettre aujourd'hui?
Grammaire:	The groups mettre, partir, and venir
	Summary of Information Questions
	The passé composé with être
Functional:	Getting information
	Talking About the Past
Mise en pratique:	Lecture: A bas la mode et vive le look!
Skills:	Prononcez-bien!
	Mots-clés: Expressing when you did something
	Face à face: Role play
	Avant de lire: Anticipating content
	Par écrit
	Functional minidialogue

October 5-October 7:
"C'est la vie!"

Vocabulaire:	Trois générations d'une même famille
	Lundi matin
Grammaire:	Some Reflexive Pronominal Verbs
	Reciprocal Reflexive Verbs
	The passé composé of Pronominal Verbs
Functional:	Expressing Some Everyday Actions
	Describing Mutual Relations
	Talking About the Past
Mise en pratique:	Commentaire culturel: Les Français et le travail
	Situation: Visite à domicile
Skills:	Functional minidialogue
	Face à face: Role play
	A propos: Pour consoler un(e) ami(e) malade ou malheureux(-uese); comment féliciter quelqu'un

October 8-October 11:
"Faisons un voyage!"

Vocabulaire:	Je pars en voyage...
	Où vas-tu? Destinations
Grammaire:	Attendre and Other Regular -re Verbs
	The Verbs voir and croire
	Prepositions with Geographical Names
	Summary of passé composé
Functional:	Expressing Location
	Talking About the Past
Mise en pratique:	Lecture: Les U.S.A. en jeans
Skills:	Functional minidialogue
	Prononcez-bien!
	Mots-clés: Putting events in chronological order
	Face à face: Role play
	Avant de lire: Anticipating content
	Par écrit

October 12-October 14:
"Vive les vacances!"

Vocabulaire:	Que peut-on faire en vacances?
	En route
Grammaire:	The Group conduire
	The imparfait
	Use of the passé composé and the imparfait
Functional:	Describing Past Circumstances
	Narrating Past Events
Mise en pratique:	Commentaire culturel: Histoire et architecture
	Situation: Une nuit à l'auberge de jeunesse
Skills:	Functional minidialogue
	Mots-clés: Time expressions with the imparfait and the passé composé
	Face à face: Role play
	A propos: Comment chercher une chambre d'hôtel

APPENDIX C

ADVERB FLOOD EXERCISES[1]

30 September: Give students the following homework: (copies enclosed)
Lisez le passage:

Nous venons de Saint-Malo. Nous voulons vraiment visiter les États-Unis. En juin, nous obtenons rapidement un visa au consultat américain et nous partons joyeusement pour les États-Unis. Nous tenons absolument à visiter New York, Washington, et La Nouvelle-Orléans.

Maintenant, imaginez que c'est vous qui partez en vacances en France. Reprenez le passage et faites tous les changements nécessaires. Commencez par "Je viens de..."

Répondez les questions suivantes aux phrases complètes. Préparez-vous à engager avec un(e) camarade de classe une conversation basée sur les questions.

1. Pars-tu souvent en voyage? Où vas-tu d'habitude? Viens-tu d'acheter des vêtements ou d'autres objets nécessaires pour tes vacances? Qu'est-ce que tu viens d'acheter?

2. Sors-tu souvent pendant (during) le week-end ou restes-tu toujours à la maison? Sors-tu souvent pendant la semaine? Qu'est-ce que tu portes quand tu sors?

3. Fumes-tu? (Do you smoke?) Tes amis fument-ils? Est-ce que ton appartement ou ta chambre sent (smells of) parfois la fumée? Deviens-tu complètement désagréable si un ami (une amie) fume chez toi? Sens-tu vraiment une différence si un ami (une amie) arrête de fumer? Devient-il (elle) calme ou nerveux?

OCTOBER 1
I. Introduce seasons and weather, then---
Page 152: Altered.

C. Climats. Posez les questions suivantes à plusieurs camarades.

1. Quels sont les mois de l'été? de l'automne? de l'hiver? du printemps?

---

[1] While a native speaker of French reviewed all of these materials before they were administered, those sentences containing *soigneusement* and *rapidement* in SVAO word order have subsequently been judged as unacceptable. This certainly brings into question the 'authenticity' of the input. Future research would benefit from obtaining as many native speaker judgments as practicably possible.

2. Quel temps fait-il d'habitude ici en été? en automne? en hiver? au printemps? Est-ce que le climat est différent dans ta ville d'origine? (hometown)
3. Qu'est-ce que tu aimes toujours manger et boire quand...il fait très chaud? il fait froid et qu'il neige? il fait beau et frais? il pleut?

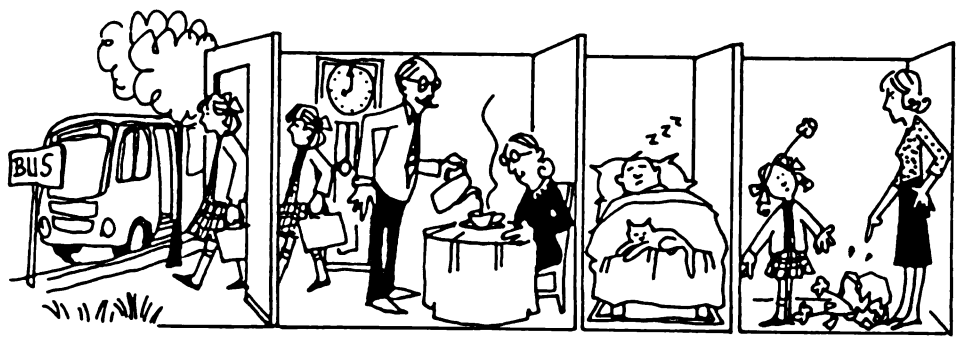
II. Introduce clothing, then---
Page 154: Altered.

B. Et vous. Posez les questions suivantes à un(e) camarade.

1. Quels vêtements trouves-tu d'habitude confortables en été? en hiver? en automne? au printemps?
2. Quels vêtements mets-tu souvent pour sortir (go out) le samedi après-midi? le samedi soir? (Je mets....)
3. Qui dans la classe porte souvent les vêtements les plus originaux? Décrivez-les.

III. Introduce verbs with enclosed pictures.
Page 155: Altered.

Pictures:
Elles **sortent** dans la rue.
Le bus **part** exactement à huit heures.
Il **sert** soigneusement le café.
Elle **sent** joyeusement le café.
Il **dort** encore.
Elle **ment** vigoureusement à sa mère.



Then---
Page 156: Altered.

Exercises.

A. Bon voyage! Complétez l'histoire avec une forme (au présent) d'un des verbes de la colmne au-dessous.

devenir dormir promettre quitter revenir sortir

Chaque matin nous_____1 tranquillement jusqu'à huit heures. Après un petit déjeuner américain copieux, nous _____2 rapidement l'hôtel pour découvrir la ville. Tous les soirs, nous _____3 joyeusement dîner dans un nouveau restaurant. En un mois nous

_____4 complètement américains. Mais hélas, c'est la fin du voyage et nous _____5 malheureusement en France. Je me _____ 6 toujours de retourner bientôt en Amérique.

Page 157: Altered.

B. Curiosité. Imaginez ce que ces personnes viennent de faire. Donnes trois possibilités pour chaque phrase.

Modèle: Pierre rentre d'Afrique.
Il vient de visiter le Sénégal. Il vient de faire un safari. Il vient d'acheter une belle sculpture.

1. Jennifer quitte rapidement Paris.
2. Je sors soigneusement du magasin de sport.
3. Nous revenons toujours de la montagne.
4. Jean-Jacques et Yvon reviennent quelquefois de la compagne.

IV. Go over homework from 30 Sept. ("Lisez le passage")

OCTOBER 4

I. Introduce information questions, then---

Page 160: Altered.

"A votre tour"
Maintenant posez une question avec **que** ou **qu'est-ce que.**

1. Il y a toujours des vestes chic ici.
2. Je regarde souvent les vêtements d'automne.
3. Jacques et Pierre cherchent attentivement des chemises de Cardin.

Page 161: Altered.

B. En Haute-Savoie. Vous interviewez une championne de ski française pour un magazine de sport. Voici ses réponses. Posez les questions correspondantes.

Mots utiles: quand, pourquoi, de quoi, d'où.

1._____? Je suis de Megève, un petit village dans les Alpes françaises.
2._____? J'ai commencé à faire du ski à six ans.
3._____? Eh bien, peut-être parce que c'est une tradition de la région. Et bien sûr, parce que j'aime ça!
4._____? Pour m'entraîner (to train), j'ai surtout besoin de calme--et de temps!

Mots utiles: à quoi, qui, qu'est-ce que, combien de

5._____? Chaque jour, en hiver, je passe d'habitude trois ou quatre heures sur les pistes (slopes).
6._____? A l'université, j'étudie la géologie. Un jour je veux absolument devenir spécialiste des glaciers.
7._____? En été, je joue souvent au tennis et au squash.
8._____? C'est Jean-Claude Killy qui a le plus (the most) influencé mon style. C'est un ami de la famille.

II. Dictée

Page 164: Before students do the written exercise!

Dictée: B. Week-end en Suisse.

Bernard **vient** joyeusement chercher Brigitte de bonne heure (early) pour aller prendre le train. Ils y **montent** soigneusement et ils **cherchent** rapidement leurs places. Le train **part** quelques minutes plus tard. Il **entre** lentement en gare (station) à Genève à midi. Bernard et Brigitte **descendent** joyeusement du train et **vont** immédiatement à l'Hôtel du Lac. L'après-midi, ils **sortent** visiter la ville. Le soir ils **dînent** dans un restaurant rustique, le Relais de Chambésy. Dimanche Brigitte **va** au Musée d'Art et d'Histoire. Elle **prend** aussi des photos de la ville. Bernard **reste** tranquillement à l'hôtel. Brigitte et Bernard **quittent** Genève en fin d'après-midi. Ils **arrivent** à Paris fatigués mais contents de leur week-end.

III. Activity

Questions--Pair work. Have the students work in pairs asking and answering the following questions. As a class, the teacher asks students about the student's partner's answers. (Review of question formation/vocabulary)

Questions: (Adapted from Trahey & White, 1993)

1. Prépares-tu le déjeuner quelquefois?
   Que prépares-tu d'habitude?
   Je prépare d'habitude_____

2. Fais-tu souvent la vaisselle chez toi?
   Qui fait d'habitude la vaisselle chez toi?
   _____fait(s) d'habitude la vaisselle chez moi.

3. As-tu un animal domestique?
   Qui le nourrit d'habitude?
   _____ le nourrit d'habitude.

4. Fais-tu toujours tes devoirs?
   Qui t'aide à faire tes devoirs quelquefois?
   _____ m'aide quelquefois à faire mes devoirs.

5. Laves-tu jamais le plancher?
   De quoi te sers-tu d'habitude pour laver le plancher?
   Je me sers d'habitude de _____ pour laver le plancher.

6. Ta mère te dit-elle souvent de nettoyer ta chambre?
   Pourquoi oublies-tu quelquefois de nettoyer ta chambre?
   Quelquefois, j'oublie de nettoyer ma chambre parce que _____.

7. Manges-tu jamais de la glace en été?
   Quel parfum de la glace achètes-tu d'habitude?
   J'achète d'habitude de la glace _____.

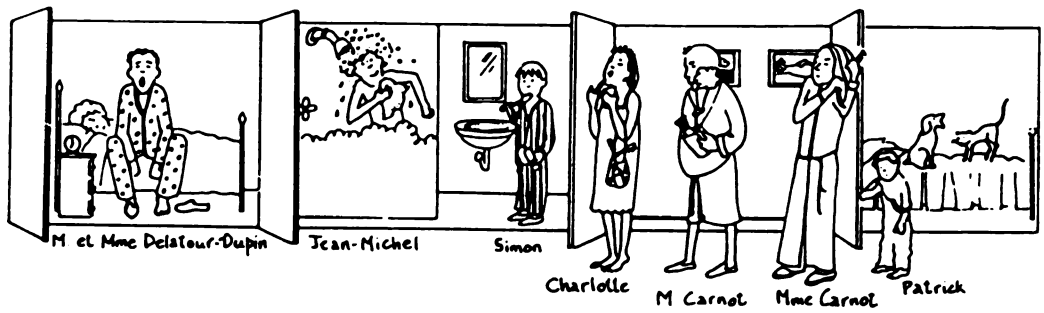
8. Manges-tu toujours tout ce qu'il y a dans ton assiette?
   Quelle nourriture ne manges-tu jamais?
   Je ne mange jamais de _____.

9. Joues-tu jamais au tennis?
En hiver, à quel sport joues-tu?
En hiver, je joue d'habitude à _____.

10. Ecoutes-tu jamais de la musique?
Quel genre de musique n'écoutes-tu jamais?
Je n'écoute jamais de _____.

OCTOBER 5
I. Introduce family names, then---
Page 173: Altered.
Pictures.

Lundi matin



A. En famille. Complétez les phrases suivantes avec le nom d'un membre de cette famille. Qui fait quoi?

1. _____se réveille lentement et son mari _____se lève.
2. Leur fils _____se douche rapidement et se lave les cheveux, pendant que son petit frère _____se brosse soigneusement les dents.
3. Dans le couloir _____ commence à se maquiller attentivement; son grand-père _____ s'impatiente: il a besoin de se raser.
4. _____ se peigne tranquillement.
5. _____ s'habille tout seul.
6. Et _____ et _____ se couchent gentiment. Ils vont bientôt s'endormir. Ils n'ont pas besoin de sortir ce matin.

II. Introduce reflexive pronominal verbs, then---
Page 176: Do "A votre tour"--parts A and B as they are in the text.

A. Habitude matinales. Qui dans votre famille a les habitudes suivantes? Créez des phrases complètes avec les éléments donnés.

mon père	se regarder longtemps dans le miroir
ma mère	se lever du pied gauche
ma soeur	se réveiller toujours très tôt
mon frère	s'habiller rapidement/lentement
mes parents	se maquiller/se raser très vite

? se préparer à la dernière minute
? se laver les cheveux tous les jours
? se brosser les cheveux longuement
? se fâcher quand il y a quelqu'un dans la salle de bains

Comparez vos habitudes avec celles des membres de votre famille ("Moi aussi, je..." or "Mais moi, je...").
Puis, comparez vos habitudes avec celles de vos camarades. Trouvez quelqu'un qui...se lève dix minutes avant de partir; se réveille avant six heures; se lève souvent du pied gauche; se maquille, se rase ou prend le petit déjeuner dans la voiture...

B. Le dimanche. La famille Laurent se comporte un peu différemment pendant le week-end. Créez des phrases complètes.

1. je/pouvoir/se réveiller/tard
2. Sylvie/se regarder/longtemps/dans/la glace
3. nous/se lever/de bonne humeur
4. Bernard et Martin/s'habiller/sans se dépêcher
5. Maman/ne pas se maquiller
6. Papa/ne pas se raser
7. je/s'ennuyer

Racontez un peu votre samedi ou votre dimanche. En quoi diffère-t-il des autres jours de la semaine?

Page 177: Do "Entre vous" A as it is in the text.

A. Interview. Interrogez un(e) camarade sur une journée typique de sa vie à l'université. Posez-lui des questions avec les verbes **se réveiller, s'habiller, se dépêcher, s'amuser, s'ennuyer, se reposer, se promener** et **se coucher**. Ensuite, expliquez à la classe les différences et les ressemblances entre votre journée et celle de votre camarade.

Page 178: Be sure to cover 17, reciprocal reflexive verbs, to the bottom of the page.

Vous quittez-vous bientôt? Oui...nous devons nous quitter juste avant Noël.
Mireille et sa soeur se téléphonent régulièrement.

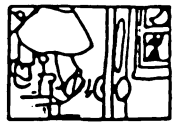
III. Cartoon. Can be done in pairs or individually. (Adapted from Trahey & White, 1993)

Organisez les images dans le bon ordre pour raconter une histoire.

A

Il ouvre rapidement la lumière.

B



Il remonte joyeusement.

C

Frank se réveille tout à coup.

D

Il se couche.

E

Il enlève sa robe de chambre.

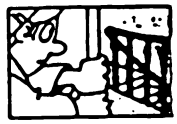
F

Il ouvre timidement la porte.

G

Il voit un chat noir dehors.

H



Il ouvre soigneusement la porte de la chambre.

I

Il entend frapper violemment.

J

Il met rapidement sa robe de chambre.

K

D'un air endormi, il ferme la lumière.

L

Il s'endort rapidement.

M

Il descend silencieusement.

N O

Il écoute silencieusement près de la porte.

O

Il se lève lentement.

1._____ 2._____ 3._____ 4._____ 5._____ 6._____

7._____ 8._____ 9._____ 10._____ 11._____ 12._____

13._____ 14._____ 15._____

OCTOBER 7

I. Verbs continued.

Page 179: "A votre tour" Altered.

Une amitié sincère. Madame Chabot raconte l'amitié qui unit sa famille à la famille Marnier. Complétez son histoire au présent.

s'écrire se rencontrer se téléphoner

Gisèle Marnier et moi, nous sommes amies depuis plus de quinze ans. Nous _____1 tous les jours et nous parlons longtemps. Nous _____ 2 souvent en ville. Quand nous partons en voyage, nous _____ 3 toujours des cartes postales.

s'aimer se disputer se parler se réconcilier se retrouver

Nos maris _____ 4 aussi très souvent et les enfants _____ 5 souvent surtout pendant les vacances pour faire du sport. Les jeunes _____ 6 parfois, mais comme ils _____ 7 bien, ils _____ 8 vite.

II. Introduction of passé composé of pronominal verbs, then---

Page 181: Do "A votre tour" A and B as they are in the text.

A. Le coup de foudre. Voici l'histoire d'amour de Pierre et de Sophie. Complétez les phrases suivantes avec un des verbes suggérés au passé composé.

se lever se parler se promener se rencontrer se dire
s'embrasser se prendre se regarder s'aimer se disputer
se marier se quitter

Pierre et Sophie _____1 chez des amis l'année dernière. Le lendemain matin ils _____2 très tôt pour se téléphoner. Ils _____3 longtemps. L'après-midi ils _____4 dans le parc.

D'abord ils _____5 du coin de l'oeil, puis ils _____6 par la main. Ils _____7 des mots d'amour et ils _____8 timidement.

Après, ils (ne...plus) _____9. Ils _____10 deux mois plus tard. Aujourd'hui, ils forment le couple parfait. Ils _____11 (présent) toujours et depuis qu'ils sont mariés, ils (ne...pas)_____(présent).12

Maintenant, avec un(e) camarade, formulez une ou deux autres conclusions possibles.

B. Souvenirs. Aline retrouve un vieil album de photos. Racontez son histoire au passé composé. Aline s'installe pour regarder son album de photos. Elle s'arrête à la première page. Elle se rappelle son premier amour...mais elle ne se rappelle pas son nom. Elle oublie aussi le jour de leur première rencontre. Elle se demande où il est aujourd'hui. Elle se sent soudain très fatiguée et elle s'endort sur la page ouverte.

A votre avis, pourquoi Aline a-t-elle un souvenir si imprécis de son premier amour?

Page 182: Do "Entre vous" A and B as they are in the text.

A. Trouvez quelqu'un qui...Interviewez quelques camarades de classe et trouvez quelqu'un qui...

1. s'est couché(e) tard hier soir
2. s'est réveillé(e) pendant la nuit
3. s'est disputé(e) avec un ami récemment
4. s'est amusé(e) la semaine dernière
5. s'est endormi(e) en classe ce semestre

B. Mon emploi du temps. Divisez la classe en petits groupes pour décrire une journée typique de votre vie. La vie de votre camarade n'est pas comme la vôtre. Il/Elle vous interrompt pour vous expliquer comment il/elle a passé sa journée.

Modèle: A: Moi, je me lève toujours à sept heures moins le quart.
B: Ce matin, je me suis levé(e) à dix heures et demie.

Page 183: Do "Commentaire Culturel"

Les Français et le travail

La mentalité des Français vis-à-vis du travail a beaucoup changé depuis quelques années. Beaucoup d'entre eux considèrent la qualité de la vie plus importante que la réussite matérielle. Ils préfèrent travailler moins même s'ils doivent gagner moins.

De nombreuses réformes sociales ont été mises en place pour répondre à ce changement de mentalité: les salariés français bénéficient de cinq semaines de vacances par an, et beaucoup travaillent seulement trente-cinq heures par semaine. De plus, le travail à mi-temps et les horaires flexibles sont très populaires, surtout parmi les femmes qui peuvent ainsi se consacrer un peu plus à leur famille. C'est le cas de cette jeune mère qui préfère renoncer à une partie de son salaire pour passer les mercredis, jours de congé scolaire, avec son enfant.

Ce refus de l'aspect aliénant du travail révèle l'importance qu'on donne, en France, à la qualité de la vie. Le bonheur pour beaucoup de Français, c'est la réalisation de soi. On aime prendre le temps de vivre. Mais cette nouvelle conception du travail n'est pas obligatoirement synonyme d'improductivité. Éliminer le stress, c'est améliorer la qualité du travail. On retrouve alors un rythme plus naturel et efficace qui permet d'avoir un meilleur équilibre personnel dans son travail. C'est le rejet de la routine. Ainsi le Français part à la reconquête du temps!

III. Dictée (Adapted from Muyskens, Omaggio Hadley, & Convert-Chalmers, 1990, p. 348).

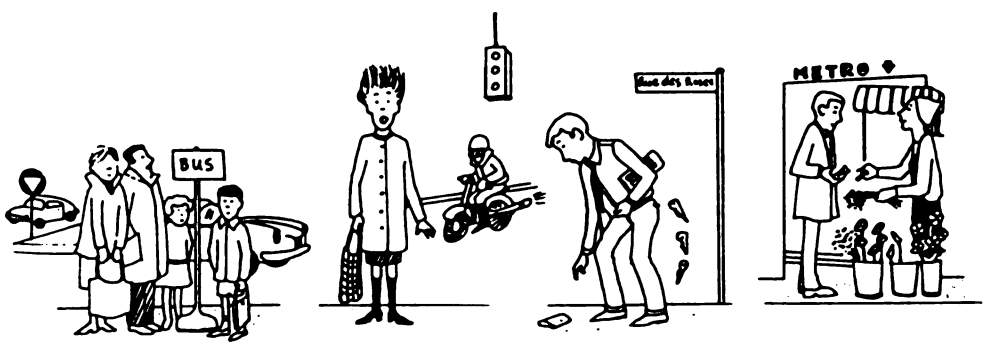
Marie veut absolument devenir médecin. Elle travaille constamment. Le matin, elle arrive d'habitude à l'hôpital à six heures et elle y reste souvent jusqu'à neuf heures du soir. Dans la journée elle travaille beaucoup et prend seulement quinze minutes pour déjeuner. Souvent, elle est fatiguée le soir. Mais, je pense qu'elle va réussir parce qu'elle est très travailleuse et ambitieuse.

OCTOBER 8

I. Introduce "Travel" then--

Page 191: Pictures. Altered.

A. *Dans la rue: attendre* and Other Regular *-re* Verbs _____



Ils attendent patiemment le bus.
Elle entend soudainement un bruit.
Il perd toujours ses clés.
Elle vend facilement des fleurs.
Elle rend joyeusement la monnaie au client.

II. Activity: After introducing verbs and geographical prepositions,

"Memory Tricks" (Adapted from Rinvolucri, 1984)
After covering geographical prepositions. (pp. 194-197): (practice in Listening comprehension, speaking, with simple past, prepositions of geography)

1. Send four of your better students out of the room with an exercise they can do outside in about 15 minutes.
2. Dictate a story to the others. They should not write anything down!
3. Make sure they understand all the words in the story.
4. Explain that one student in the group is to prepare to retell the story to one of the four who have gone out. This one student can ask two questions about the story after it has been told to him/her. The second 'outside' student will be brought back in, and the first 'outside' student will tell him/her the story. During this telling the class is to note down how the story gets changed using these three categories:

   Things added Things left out Things changed

5. Each 'outside' student is brought into the class, and the previous 'outside' student tells him/her the story and he/she can ask two questions. During this time, the class is taking notes regarding the above categories.
6. After the four students have returned, one student reads the original story.
7. Categories are put on the board and class lists information in each category.

Story:

Sabine est étudiante à Rouen. Elle veut absolument faire un voyage en Asie. Elle y pense constamment. Alors, elle a decidé tout à coup de partir en vacances. Elle prend joyeusement son billet d'avion. Elle fait rapidement ses valises. Elle attend son départ avec impatience. Et puis, le jour arrive. Son vol part exactement à six heures. Elle ne manque pas le vol. Mais....malheureusement, elle est montée dans le mauvais avion! La destination de cet avion est en Amérique du Nord. Ainsi, elle est restée en transit au Mexique quelques heures. Elle va arriver en Californie le soir. Elle veut vraiment s'amuser. Donc, elle va passer la semaine à Las Vegas dans le Nevada et puis elle va probablement aller à La Nouvelle-Orléans.

OCTOBER 11

I. After covering 'croire' (p. 192), as a pre-imparfait exercise, give the students the following exercise: (enclosed)

"En cours de socilogie" (Rochester et al., 1990, p. 345).

Sabine: Je pense qu'en France, l'idéal du succès c'est toujours la 'performance culturelle.'
Le Professeur: Analysez rapidement pour nous les rapports entre cet idéal de la réussite et le système scolaire français.
Sabine: On peut dire que c'est à cause de cet idéal que l'enseignement français est principalement centré sur le diplôme.
Jérôme: Le diplôme, en France, est un moyen d'ascension sociale; les Français croient beaucoup à une élite diplômée.

Le Professeur: Dites-moi maintenant si vous pensez que cette attitude diffère sensiblement dans les autres pays. Aux États-Unis, par exemple...

1. Pour Sabine, est-ce que l'idéal du succès en France est parfois la 'performance culturelle'?

2. Le professeur demande-t-il à Sabine d'analyser en détail les rapports entre cet idéal et le système scolaire?

3. Est-ce que Jérôme pense que les Français croient peu à une élite diplômée?

II. "Vente aux enchères" (Adapted from Rinvolucri, 1984)

Review of vocabulary, geographical prepositions, passé composé.

1. Ask students if any of them have been to an auction. Ask questions of those who have. Introduce necessary words like to bid, auctioneer, a bid, What am I bid? Going, going, gone! (une fois, deux fois, adjugé, vendu!)

2. Pair the students off and give each pair an auction sheet. Tell them that some of the sentences on the sheet are correct and some incorrect. They are to read through and decide which sentences are correct and which incorrect. In the auction that is to follow they are going to have to bide for sentences, the aim being to buy only correct sentences. Tell them each pair has F5,000 for buying sentences and ask them to note down in the *budget* column of their auction sheets how much they are willing to bid for a given sentence. They may not spend more than F5,000 in the auction. The winners of the auction are the pair with the most correct sentences and the most money left.
As the students work on the sentences and discuss their budgeting in pairs deny them all language help--it is up to them to take responsibility for what they think they know. They may NOT use their books.

3. Before starting the auction tell them you will not accept bids of less than F200.

START THE AUCTION:
a. Read out the first sentence in a lively, persuasive way, even if it happens to be wrong, and ask for bids.
b. Keep the bidding moving fast, keep up a fast pace.
c. When you come to the 'going, going, gone' stage, be ready to accept last minute bids. When a sentence has been auctioned off make sure students keep a note of the buyer and the amount in their bought columns.
d. Start the auction with the first sentence on the auction sheet but then auction the rest of the sentences in random order--this heightens the feeling of expectancy.

4. After each sale tell the group if the sentence is correct or not and in the latter case give the correct version. Do this fast--don't spend time during the 'auction' going over grammar points.

5. When the auction is over, go over the sentences the students did not understand and the incorrect sentences which the students thought were correct.

*1. Les Yamamoto retournent joyeusement en Japan.
*2. Pour voyager en TGV hier, je réserves une place à l'avance.
3. Quand revoyez-vous vos amis? Nous nous voyons souvent.
*4. La vol n^{0} 2 part immédiatement à destination à Bruxelles.
5. Je veux vraiment aller à cet endroit parce qu'il y fait du soleil.
*6. Elle n'est pas descendu.
*7. Elle croit absolument à cette route est bonne.

8. A dix heures précises, le train s'est mis à rouler.
9. Nous avons rendu visite à notre tante.
*10. Elle s'est souvenu de quelque chose.
11. D'abord, elle a voyagé en vélo. Puis, elle a pris la voiture.
12. Le train entre lentement en gare.
13. Sabine vient d'Allemagne.
14. Genève est en Suisse.
15. J'habite tranquillement à Montréal.

III. Homework--"Le cas de l'auto-stoppeur affamé" (Adapted from Trahey & White, 1993)

To the teacher:
Give each student a copy of the Encyclopedia Brown story "The Case of the Hungry Hitchhiker." Tell the students who Encyclopedia Brown is according to the following description.

Encyclopédie Brun habite à Idaville. Il a dix ans et il aime résoudre les mystères. Le père d'Encyclopédie est le Commissaire de police d'Idaville. Tous les gens pensent que la police d'Idaville est la meilleure du monde. Mais, le Commissaire Brun sait que c'est Encyclopédie qui l'aide à résoudre les problèmes les plus difficiles. Ils discutent des problèmes à table, et souvent Encyclopédie les résoud immédiatement. Mais, personne d'autre ne le sait pas. Qui va le croire?

"Le cas de l'auto-stoppeur affamé"

L'après-midi, Encyclopédie Brun allait souvent à la pêche avec ses amis. Les soirs où il faisait très chaud, le Commissaire Brun se rendait quelquefois en voiture au fleuve et il a reconduisait Encyclopédie chez eux.
"C'est magnifique," a dit joyeusement Encyclopédie, un soir comme il montait dans la voiture climatisée. "Il fait très chaud."
"Il fait trente-cinq degrés," a dit son père.
Tout à coup, une voix s'est fait bruyamment entendre à la radio de police.
Il y avait eu un hold-up à la Banque Royale il y a dix minutes. Les quatre voleurs se sont échappés dans une voiture bleue. Ils se sont rapidement dirigés vers le nord.
Le père d'Encyclopédie a radiotéléphoné rapidement au poste de police.
"C'est de la part du Commissaire Brun," a-t-il dit soigneusement. "J'irai au grand chemin. Faites sortir les voitures de reconnaissance et appelez immédiatement les autres postes." Le Commissaire Brun est retourné rapidement à la voiture.
Encyclopédie a regardé son père silencieusement. Il souriait joyeusement. Il n'avait jamais donné la chasse aux voleurs.
"Nous ne les verrons pas," a dit lentement le Commissaire Brun. "Ils vont trop vite. J'éspère que quelqu'un verra le chemin qu'ils ont pris."
Le Commissaire Brun a roulé prudemment sur le grand chemin. Encyclopédie a vu un auto-stoppeur qui attendait avec patience que quelqu'un le prenne. C'était un jeune homme qui portait un grand sac.
"Si la voiture passait par ici, cet auto-stoppeur la verrait," a crié Encyclopédie.
"Peut-être," a répondu le Commissaire Brun. "Cela dépend combien du temps il est là."
Le Commissaire Brun s'est arrêté à côté de l'auto-stoppeur.
"Depuis combien de temps attendez-vous?"
"Depuis une heure," a répondu soigneusement l'homme.
"Une voiture bleue est-elle passée rapidement ici?"
"Oui," a répondu l'auto-stoppeur à haut voix. "Elle a pris cette route là. Ils conduisaient rapidement.
"Montez," a dit rapidement le Commissaire Brun.
L'homme a regardé silencieusement l'uniforme du Commissaire Brun. "Pourquoi?" l'homme a demandé timidement. "Voyager en auto-stop, c'est contre le loi?"
"Non, soyez tranquille," a dit le Commissaire Brun. "Si vous voyiez la voiture, la reconnaîtriez-vous?"
"Oui," a dit l'homme et il est rapidement monté dans la voiture. Il a ouvert son sac lentement.

"Voudriez-vous une orange?" a-t-il demandé avec bonté à Encyclopédie. "Ou du chocolat?"
"Du chocolat, s'il vous plaît," a répondu Encyclopédie.
Encyclopédie a pris le chocolat. Il en a pris deux morceaux. Le chocolat était très dur. Il a rendu le reste.
L'auto-stoppeur a mis le chocolat dans son sac. Lentement, l'homme a commencé à manger son orange. Il a soigneusement mis la pelure dans un sac en papier.
Lentement Encyclopédie a mangé le chocolat. Tout à coup, il a eu très peur. Il a pris un crayon dans sa poche, mais il n'avait pas de papier.
"Est-ce que je peux avoir encore du chocolat?" a demandé Encyclopédie timidement.
L'auto-stoppeur riait doucement et a donné son chocolat à Encyclopédie.
Encyclopédie a rapidement mangé le chocolat. Lentement et soigneusement, il a écrit sur le papier: "l'auto-stoppeur est le voleur." Puis, il a silencieusement mis le papier à côté de son père. Le Commissaire Brun a rapidement regardé le papier et a continué à conduire. Enfin, ils sont arrivés au poste de police. Lentement, le Commissaire Brun a ouvert la porte de la voiture. Tout à coup, il s'est mis à côté de la porte de l'auto-stoppeur. Il a soigneusement braqué son canon sur l'homme.
"Nous n'avons pas retrouvé vos amis, mais nous vous avons attrapé," a-t-il dit avec colère. "Vous êtes en état d'arrestation."

Comment est-ce que E. a su que l'auto-stoppeur était un voleur?

Solution:
L'auto-stoppeur a fait une faute quand il a donné le chocolat à Encyclopédie. Le chocolat était ferme. Mais l'homme a dit qu'il attendait près du chemin depuis une heure par une chaleur de trente-cinq degrés. Le chocolat aurait dû complètement fondre à cause de cette chaleur. Il aurait dû être très mou. L'auto-stoppeur a menti parce que c'était le voleur qui etait censé attirer l'attention de la police et la mener sur une fausse piste. L'homme a expliqué qu'il avait gardé le sac dans la fraîcheur de la voiture pour filer jusqu'à ce que les autres soient partis.
Les autres voleurs ont été arrêtés rapidement.
(Adapted from: Sobol, 1978).

OCTOBER 12
In groups have students try to find solution to "Le cas de l'auto-stoppeur affamé"

I. Introduce "Les vacances" with---
Page 205:
Do B "Mes vacances" with following alterations:

Mes vacances. Posez les questions suivantes à un(e) camarade et dites-lui vos préférences.

1. Où préfères-tu d'habitude passer tes vacances? à la mer? à la ontagne? à la campagne? dans le désert? en ville? à la maison? à l'étranger? Pourquoi?

2. Qu'est-ce que tu aimes souvent faire pendant les vacances? des voyages? du sport? un stage (short course) de yoga, de photographie...? autre chose? Qu'as-tu fait pendant tes dernières vacances?

II. Introduce 'conduire' verbs, then--

Page 207: Do exercise at bottom of page in text.

A. Séjour à Genève. Complétez chaque phrase avec la forme de **conduire, produire, réduire** ou **traduire** qui convient.

1. Dans le cours de langue pour étrangers, nous ne _____jamais.
2. Si vous prenez le TGV, vous _____ radicalement le temps du voyage.
3. En ville, les automobilistes ne _____ pas toujours avec prudence.
4. Au Palais des Nations, les interprètes_____ tous les discours des diplomates.
5. En Suisse, on _____ aussi de très bons vins.

Page 208: Do "Nostalgie"

Nostalgie

C'est le premier août. Beaucoup de Français partent en vacances. Pierre et Louise Dupoirier vont à la montagne comme chaque été. Leur voiture, chargée de valises, est prise dans un embouteillage.
Pierre: Quand j'étais enfant, tu sais, les vacances, c'était vraiment le paradis.
Louise: Tu allais toujours en province, n'est-ce pas?
Pierre: Oui, nous passions nos vacances sur la côte normande, chez ma grand-tante. Aujourd'hui, il me semble qu'il y faisait toujours un temps splendide, que les journées étaient longues...
Louise: Et que faisais-tu là-bas?
Pierre: En fait, très peu de choses. On jouait, on se baignait dans la mer, on s'occupait un peu du jardin.
Louise: Mais regarde un peu cet embouteillage! Nous allons passer nos vacances sur l'autoroute.

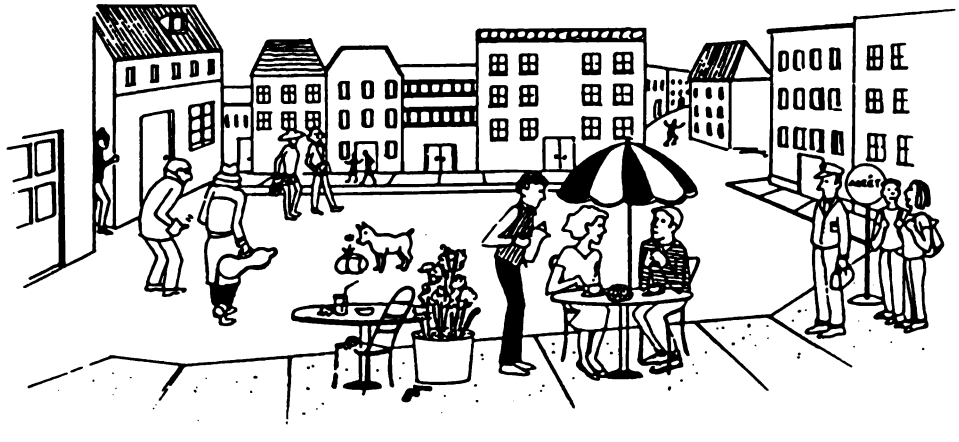
Répondez aux questions suivantes.
1. Où est-ce que Pierre passait autrefois ses vacances?
2. Qu'est-ce qu'on y faisait?
3. Comment les Dupoirier passent-ils leurs vacances maintenant?

III. Introduce imparfait, then---
Page 210: "A votre tour" do A and B as they are in the text.
A. Une ville de Bourgogne. Quand Hervé habitait à Dijon, il sortait régulièrement avec ses amis. Décrivez ses activités en mettant tous les verbes du paragraphe suivant à l'imparfait.

A Dijon, nous sommes une bande de sept amis. Nous nous voyons presque tous les jours. Le samedi, nous allons à bicyclette pique-niquer à la campagne. Quelquefois on fait des achats ou on se promène dans la Vieille Ville. Nous aimons aussi nous promener sur le quai.

Le soir, quelqu'un choisit un film. On va aussi souvent à la disco, mais moi je préfère écouter de la musique classique. On rentre se coucher tard.
Nommez trois ou quatre des activités d'Hervé et de ses amis.

B. Créez une ambiance. Imaginez que vous êtes romancier (-ière) et que vous commencez un nouveau livre. Voici la scène que vous imaginez et... votre premier paragraphe:



"Il est huit heures du matin. De la fenêtre de mon hôtel, je vois la place Daudet. Quelques personnes attendent l'autobus. Sur la terrasse du café, les garçons servent du café et des croissants. Les trottoirs commencent à se remplir de touristes. Il fait beau et pas trop chaud. Je me sens tranquille."

Mais non! Vous n'êtes pas satisfait(e). Recommencez. D'abord, mettez le paragraphe à l'imparfait: "Il était..."

Mais vous n'êtes toujours pas satisfait(e). Essayez encore une fois. Toujours à l'imparfait, créez une atmosphère sombre et mystérieuse. Commencez par: "Il était onze heures du soir..." Finalement, présentez votre début de roman à vos camarades. Demandez-leur d'en faire la critique.

IV. Introduce imparfait vs. passé composé, then--
Page 214:
"A votre tour" Altered.
Do A with following revisions:

Une soirée mouvementée (eventful). Vous étiez chez vous hier soir. Vous vouliez faire certaines choses...mais il y a eu toutes sortes d'interruptions! Suivez le modèle.

étudier silencieusement / le français...téléphone / sonner
J'étudiais silencieusement le français quand (lorsque) le téléphone a sonné.

1. préparer soigneusement/ leçon de maths....un ami/ téléphoner

2. attendre poliment/ copain....mes parents/arriver

3. aller sortir...quelqu'un (someone)/ sonner à la porte

4. lire silencieusement/ journal...la propriétaire/ venir demander/ argent du loyer (rent)

5. être en train de regarder/ télé...ma camarade/ mettre/ radio

V. Vocabulary review/recognition and listening comprehension--

For this activity, the class should be divided into two teams. You have a set of numbered index cards. On each card is a scrambled word. You also have a list of numbered sentences which will serve as clues that only you may see. Show each team one card. Then read out the sentence clue that corresponds to that word. The team will have one minute (or less) to unscramble it, the other team gets a try and the point if they succeed. Then the other team gets shown a word, and so on. The team that reaches 30 first wins. (Adapted from Trahey & White, 1993)
Quel est le mot????

1. Quand il fait du soleil, nous allons souvent à la plage.
2. J'envoie toujours un cadeau à mon ami pour son anniversaire.
3. Quand je suis fatigué, je vais d'habitude au lit.
4. Nous achetons souvent du l'essence pour notre voiture.
5. En hiver, je joue quelquefois au hoçkey avec mes amis.
6. Quand je suis pressé, j'oublie quelquefois mes clés.
7. Quand j'entends une farce, je ris toujours.
8. Je mange d'habitude trois repas par jour.
9. Au printemps, mon père plante toujours des fleurs dans le jardin.
10. J'étude toujours beaucoup quand j'ai un examen.
11. Je prends souvent une orange avec le déjeuner.

12. J'écris d'habitude avec une plume.
13. À Noël, ma famille va toujours rendre visite à ma tante.
14. Quand je suis malade, je vais d'habitude chez le médecin.
15. Le matin, je me lave toujours les cheveux.
16. Quand il n'y a pas de chaises, nous nous asseyons quelquefois par terre.
17. À la ferme, je monte d'habitude à cheval.
18. Je mange toujours des céréales avec du lait.
19. Les gens se rendent quelquefois au travail en train.
20. Quand je vais à la plage, je prends d'habitude une serviette.
21. Je me brosse toujours les dents après avoir mangé.
22. Nous nous asseyons d'habitude sur une chaise.
23. Quand il fait beau, nous ouvrons toujours la fenêtre.
24. Quand je vais à la plage, la sable entre toujours dans mes chaussures.
25. Je prends souvent du pain le matin.
26. Le professeur écrit toujours avec de la craie au tableau noir.
27. Quand nous faisons du camping, nous cuisinons souvent au feu de bois.
28. J'aide quelquefois ma mère à nettoyer la maison.
29. Une île est toujours entourée d'eau.

APPENDIX D

INFERENCING EXERCISES

OCTOBER 1

I. Teacher-centered instruction/explanation. Explicit inferencing exercise (Carton, 1966, pp. 82-86).

Context Cues--meaning of words can frequently be found in the context of a reading passage.

Write on the board the nonsense sentence: "Le barratineur a pavoisé la baraque avec des liquettes." Discuss questions to facilitate 'sensible guessing' of unknown words:

A. Is it a noun?

1. Grammatical questions
    a. Is it singular or plural?
    b. What adjective modifies it, if any?
    c. What gender is it?
    d. Is it the subject or object of a verb?
2. Pragmatic questions
    a. Does it refer to person, things, conditions, events, qualities?
    b. How many?
    c. What kind?

B. Is it a verb?

1. Grammatical questions
    a. Does it show future, present, or past?
    b. is it subjunctive?
    c. What is its subject?
2. Pragmatic questions
    a. Does it refer to an action, change, condition, relationship?
    b. When?
    c. Do people do it?
    d. If not, what kind of thing does it?

C. Is it an adjective or adverb?

1. Grammatical questions
    a. Which word in the sentence does it modify, or apply to?
2. Pragmatic questions
    a. What is it describing in this sentence?
    b. Does it describe some fact, or does it indicate somebody's attitude?
    c. What kind of fact or attitude? (physical attributes, manner, judgment)

"Le barratineur a pavoisé la baraque avec des liquettes."

Request information shown by sentence on parts of speech, ending, role, and relationships.

a. barratineur: -eur, noun marker. 'le': masculine agent
b. a pavoisé: verb, passé composé, transitive
c. la baraque: object of verb, marked by 'la', therefore feminine noun
d. liquettes: marked by 'des', therefore plural, -ette, feminine ending, something used as object of prepositional phrase

The Operation of Context

Definition of a word may be signaled by the use of a form of 'être'.
Definitions may also be signaled by the use of EXAMPLES which may be signaled by words such as:

comme	autre
surtout	ça, ce, cet(te)
ou.....ou	ces

Examples:

être: Mona Lisa est un tableau de da Vinci. If you don't know the meaning of 'un tableau', you can infer it from knowing what the Mona Lisa is.

ça: Mais ce qui est arrivé hier, devant mes yeux, je dois dire que ça dépasse tout. If you don't know the meaning of 'dépasser', you can infer it by refering back to 'ce qui est arrivé'.

autre: Racontez un peu votre samedi ou votre dimanche. En quoi diffère-t-il des autres jours de la semaine. If you don't know the meaning of 'samedi' or 'dimanche', you can infer the meanings from 'jour'.

Notice that by knowing the meaning of one term allows you to infer the meaning of the other term.

Meaning may also be signaled by RESTATEMENT in the text. This may be signaled by words such as **ou** or by introductory phrases such as:

en d'autres mots	ce que ceci veut dire
c'est-à-dire	
ce qui signifie	

Example:

En gros, la France a la forme d'un hexagone, c'est-à-dire d'une figure géométrique à six côtés.

Where relationships in the text are not explicit but must be INFERRED, connecting words such as the following will help guide you in determining the relationship:

cependant	pourtant
donc	alors
de la même façon	

Examples:

Je n'aime pas danser, donc je ne danse pas ce week-end.
Ma cousine étudie l'espagnol, mais j'étudie le français.

OCTOBER 4
Exercise Added:
Review of verbs. Embedded inference exercise; an application of Carton's method.

Write the following sentences on the board and ask the questions.

Tu es parti. Is 'tu' masculine or feminine? How do you know? (No 'e')
Vous êtes partis. masculine or fem? How do you know?
Nous sommes parties. masc or fem? How do you know?
Ils sont partis. Is this correct? How do you know?

Exercise Added.
Page 165-167: Mise en pratique. Explicit Inference Exercise from text.

Lecture: A bas la mode et vive le look!

"Avant de lire"
Anticipating content. Test illustrations, titles, and lead lines or highlighted material are valuable aids in reading. Before starting to read a passage, you can examine them for clues about the content of the accompanying text. Clues serve as advance organizers to the reading. In-text illustrations and captions can also clarify meaning during the reading process itself, as visual representations can convey specific and general, explicit and implicit information. Readers who start with a working hypothesis when confronted with an unfamiliar text seem to read more quickly and with greater understanding.

Le concept tradionnel de la mode n'intéresse pas beaucoup les jeunes Français d'aujourd'hui: l'important pour eux, c'est "le look." Quelle est la différence? Le look exprime des idées personnelles, c'est un commentaire existentiel, politique, une prise de position. Les ancêtres du look, ce sont les Hippies. Dans les années 60, leurs vêtements (chemise indienne et cheveux longs) et leurs styles de vie (communes) communiquaient un message de paix et de retour à la nature.

Comme eux, aujourd'hui, les jeunes s'habillent selon leurs opinions: extrême-droite, hyper-gauchiste, BCBG, Punks, New-wave, Babas, Rockers, Silicon Valley, Smurfs, Nouveaux-riches...Chacune de ces "tribus" de jeunes a aussi son propre territoire, comme par exemple à Paris, les BCBG près de l'École militaire, les Mods dans le Marais, les Punks dans le vingtième arrondissement et les Rockers dans la banlieue nord. Ils ont aussi adopté des idoles, un langage et des symboles particuliers. En voici quelques exemples. (Pictures provided in text).

Les cools
Le look: jeans, tee-shirt Fruit of the Loom, les badges
Les idées: américanophiles
Les passions: les États-Unis, le Coca-Cola, les jeeps, le rock américain

Les BCBG (Bon Chic, Bon Genre)
Le look: britannique, le loden vert, les mocassins, un foulard Hermès
Les idées: bourgeoises, droite libérale
Les passions: Lady Di, les grands couturiers, le polo, le golf, le tennis

Les punks
Le look: blouson de cuir noir, cheveux en crête, lunettes noires
Les idées: nihilistes, anticonformistes
Les passions: la laideur calculée, le noir, le rock, les skates

Le genre "boyfriend"
Le look: vêtements d'homme, manches et pantalons retroussés, bretelles, cravate, accessoires mode
Les idées: vivre pour le moment, le standing
Les passions: la bande et les lieux de rencontre "in"

Page 167: Exercise Added.
Avez-vous bien compris? Corrigez les phrase inexactes.
1. Les jeunes Français adorent vraiment la mode tradionnelle.
2. La mode chic exprime souvent des idées personnelles.
3. Les ancêtres du look sont Yves Saint-Laurent et Pierre Cardin.
4. La jeunesse française est unifiée.
5. Le look des BCBG est américain.
6. Les partisans du genre "boyfriend" portent toujours des tee-shirts Fruit of the Loom.
7. Les cools sont nihilistes.

Exercise Added. Vocabulary Review. Inference exercise.

Which words do not belong? Why?

beau	partir
chaud	monter
froid	rentrer
vent	donner
pleut	rester
pleut; all others 'il fait...'	donner; all others conjugated with être

la robe
le chandail
la boutique
le tailleur
le costume

la boutique; all others articles of clothing

dormir	quitter
partir	mourir
sortir	mettre
quitter	prendre
	donner
dormir; all others mean 'to leave'	'mourir'; all others must take d.o.

OCTOBER 5
Do Inferencing exercise I. For all of these exercises (I - V), ask students to try to answer the French exercises in French. If they can't, it's ok to use English. Be sure to go over the answers with them.

Exercise in Inference.
I. Ci-dessous voici une liste de mots arrangés deux par deux. Pour chaque paire, trouvez la relation qui existe entre les deux mots. (Adapted from Sternberg 1988: 119).

	Rapport entre les deux mots
1. manche: chemise	_____
2. bleu: peu	_____
3. crayon: écrire	_____
4. fourchette: couteau	_____
5. nombre naturel: nombre compte	_____
6. gigantesque: énorme	_____
7. les: sel	_____
8. femme: homme	_____
9. livre: page	_____

10. résident: non-résident _____
11. mal: pis _____
12. chaise: meubles _____
13. canadien: français _____
14. véhicule: autobus _____
15. professeur: enseignement _____

Exercise Added. Vocabulary review. Exercise in Inference.
Write following lists on board. Ask students which words go together. Why?

se réveiller	le bureau
se laver	tard
se préparer	les cheveux
travailler	à

OCTOBER 7
Do Inference exercise II. Exercise in Mapping.

II. Ci-dessous voici quatorze ensembles de mots arrangés deux par deux. Essayez de trouver la relation qui existe entre les deux listes. Six ensembles sont en français et huit sont en anglais. (Adapted from Sternberg 1988: 131-132).

Premier Rapport	Deuxième Rapport	Rapport entre les rapports
1. midi: douze	minuit: douze	_____
2. le plus court: mai	le plus long: septembre	_____
3. violet: bleu	rose: rouge	_____
4. Afrique: continent	Zaïre: pays	_____
5. balle: jeter	gant: porter	_____
6. café: tasse	vin: verre	_____
7. French: poodle	German: shepherd	_____
8. Mom: Dad	383:121	_____
9. Seagull: flock	wolf: pack	_____
10. warts: straw	lived: devil	_____
11. socks: pair	eggs: dozen	_____
12. freshman: youngest	senior: oldest	_____
13. cabbage: cole slaw	potatoes: french fries	_____
14. trip: strip	lime: slime	_____

Exercise Added. Embedded Inference.
Which word does not belong? Why?

l'oeil
l'oreille
la tête
l'épaule

l'oeil is the only masculine term. However, l'épaule is the only body part below the neck. Both generalisations are correct.

Exercise Added. Application of Carton's Method of Inference.
Write the following sentences on the board and ask the questions.

1. ____ s'est levé à six heures.
2. ____ s'est regardé dans le miroir.
3. Je me lève lentement à six heures.
4. ____ se lève rapidement à neuf heures.

Are the subjects masculine or feminine? 1 and 2 have to be masculine--no 'e' on the past participle. 3 and 4, it's impossible to know.

OCTOBER 8
Do Inference exercise III. Analogies.

III. Complétez l'analogie. Elles sont en anglais et en français. Donnez la raison de votre choix. (Adapted from Sternberg 1988: 135).

1. journal: papier comme chaussure:
   a. pair b. chaussette c. cuir d. pied

2. parent: père comme enfant:
   a. oncle b. tante c. fils d. frère

3. 7/4: 175% comme 3/25:
   a. 3% b. 12% c. 25/3 d. 4/7

4. Rodin: Le Penseur comme Da Vinci:
   a. l'art b. l'Italie c. Mona Lisa d. La Renaissance

5. farine: pain comme laine:
   a. chandail b. mouton c. coton d. tricot

6. meubles: charpentier comme roman:
   a. livre b. auteur c. rayon d. écrit

7. son: silence comme mouvement:
   a. vitesse b. degré c. décoration d. calme

8. breeze: gale as shower:
   a. raindrop b. wind c. weather d. cloudburst

9. cowardice: yellow as envy:
   a. green b. hatred c. fear d. jealousy

10. touch: numb as sight:
    a. bright b. optical c. clear d. blind

11. eggs: beat as cream:
    a. pie b. cheese c. whip d. pour

12. water: steam as fire:
    a. chimney b. wood c. smoke d. arson

13. compass: direction as watch:
    a. strap b. clock c. sight d. time

APPENDIX H

ACCEPTABILITY JUDGMENT TASK

Number_____ Date_____

Here are some sentences. In some of the sentences, some of the words are in the wrong place. Look at each pair of sentences and circle the answer that you think is best.

EXAMPLE 1:

a. Les jeunes filles vont au parc.
b. Les jeunes filles vont le à parc.

only a is right only b is right both right both wrong don't know

EXAMPLE 2:

a. Jean près de l'école habite.
b. Jean habite près de l'école.

only a is right only b is right both right both wrong don't know

EXAMPLE 3:

a. Hier Marie a été en retard.
b. Marie a été en retard hier.

only a is right only b is right both right both wrong don't know

EXAMPLE 4:

a. Ce chien est grand très.
b. Chien ce est très grand.

only a is right only b is right both right both wrong don't know

1. a. Tom au travail va en motocyclette.
   b. Tom en motocyclette va au travail.

only a is right only b is right both right both wrong don't know

2. a. Gabrielle mange toujours à six heures.
   b. Gabrielle toujours mange à six heures.

only a is right only b is right both right both wrong don't know

3. a. Le bébé d'habitude sourit à sa mère.
   b. Le bébé sourit à sa mère d'habitude.

only a is right only b is right both right both wrong don't know

4. a. Frank souvent travaille la nuit.
   b. Frank travaille souvent la nuit.

only a is right only b is right both right both wrong don't know

5. a. Carole déteste l'odeur des cigarettes.
   b. Carole l'odeur des cigarettes déteste.

only a is right only b is right both right both wrong don't know

6. a. Souvent Thomas oublie ses devoirs.
   b. Thomas souvent oublie ses devoirs.

only a is right only b is right both right both wrong don't know

7. a. Louise joue tranquillement avec sa poupée.
   b. Louise tranquillement joue avec sa poupée.

only a is right only b is right both right both wrong don't know

8. a. Les jeunes filles lentement finissent leur travail.
   b. Les jeunes filles finissent leur travail lentement.

only a is right only b is right both right both wrong don't know

9. a. Linda toujours prend le métro.
   b. Toujours Linda prend le métro.

only a is right only b is right both right both wrong don't know

14. chairman: meeting as judge:
a. trial b. lawyer c. criminal d. sentence

15. repel: leper as remit:
a. banker b. envelope c. cancer d. timer

Page 196: "A votre tour" B Added. Embedded Inference Exercise.

B. Retour de voyage. Vous rencontrez des touristes qui rentrent de vacances. Dites d'où ils arrivent d'après les objets déclarés à la douane.

Ce/Cette touriste arrive de/du/d'/des...

Souvenirs	Pays visités
1. une montre	le Cameroun
2. du parfum	les Pays-Bas
3. une bouteille de Tequila	l'Italie
4. un masque d'initiation	le Mexique
5. des chaussures en cuir fin	le Japon
6. un pull en shetland	l'Écosse
7. du chocolat	le Maroc
8. un couscoussier	la Colombie
9. du café	la Belgique
10. des tulipes	la Suisse
11. une caméra vidéo	la France

OCTOBER 11
Do Inference exercise IV. Series Completion.

IV. Ci-dessous voici quinze séries de termes. Complétez chaque série. Elles sont en anglais et en français. Donnez la raison de votre choix. (Adapted from Sternberg 1988: 139-140).

1. toujours, d'habitude, quelquefois: possible,
a. peu probable, b. probable, c. certain, d. chance,

2. Cleveland, Ohio, aux États-Unis: France,
a. l'Europe, b. région, c. Paris, d. l'Allemagne,

3. grand-père, père, frère: soeur,
a. parent, b. fille, c. mère, d. enfant,

4. éclair, pâtisserie, dessert: fruit,
a. pomme, b. nourriture, c. légume, d. banane,

5. elementary school, junior high, high school: 18,
a. 0, b. 10, c. 65, d. 22,

6. le nord du Minnesota, l'est du Connecticut, le sud du Nebraska: six heures,
a. neuf heures, b. minuit, c. réveil, d. heure,

7. seed, seedling, sapling: teenager,
a. adolescent, b. child, c. adult, d. infant,

8. knuckle, wrist, elbow: knee,
   a. foot, b. leg, c. toe, d. hip,

9. bee, sea, dee: pew,
   a. pod, b. owe, c. cue, d. bean,

10. broomstick, pencil, toothpick: nail,
    a. hammer, b. metal, c. bolt, d. tack,

11. fog, drizzle, shower: flurry,
    a. blizzard, b. snowflake, c. drift, d. ice,

12. luxury car, family car, jalopy: cottage,
    a. house, b. cheese c. hut, d. mansion,

13. anthem, kickoff, first quarter: last act,
    a. intermission, b. overture, c. actors, d. curtain call,

14. reprimand, suspension, expulsion: robbery,
    a. criminal, b. murder, c. theft, d. misdemeanor,

15. animal, vertebrate, reptile: tree,
    a. plant, b. forest, c. willow, d. branch,

Exercise Added.
Page 201: "Mise en pratique" Explicit Inference Exercise from Text.

Lecture: Les U.S.A. en jeans

"Avant de lire"

Anticipating content. When you begin any reading, you already have certain expectations. They may be based on your opinion of the publication in which the passage appears, the titles and subheads of the piece, the name of the author, a review you have read, recommendations by others, the illustrations and photographs provided, or prior experience with the subject. These expectations may or may not play a role in your understanding.

For example, you expect the readings in *Bonjour, ça va?* to contain information about some aspect of the life of French speakers. You may have had certain preconceptions about the subject. By now, you are prepared to discover similarities and differences between Francophone culture and your own.

Before reading "Les U.S.A. en jeans," you may wish to articulate your own expectations by doing the following exercise.

1. First, look at the title of the passage, and at the illustration(s) that accompany it. Write a sentence explaining what you think the passage is about.
2. Read the first sentence or two of each paragraph and describe some facts you expect to find in those paragraphs.
3. Finally, write a third sentence describing a personal experience or an experience of an acquaintance that reminds you of the content of the reading.

After reading "Les U.S.A. en jeans," look back at the sentences you have written. Did they anticipate correctly the content of the passage? You will probably find that your expectations shaped and facilitated your reading comprehension.

OCTOBER 12

Do Inference exercise V. Classification.

V. Below are fourteen verbal classification problems. Decide which option pairs fit with the word given. Explain why you have made the choice you have. (Adapted from Sternberg 1988: 147-148).

1. book,
   a. chapter, page b. magazine, letter c. publisher, printer
   d. shelf, library

2. burgundy,
   a. scarlet, crimson b. wine, beer c. Paris, France
   d. bottle, cork

3. thread,
   a. needle, pin b. strand, spool c. sewing, mending
   d. rope, string

4. stomach,
   a. digestion, circulation
   b. esophagus, intestines
   c. ulcer, operation
   d. neck, lungs

5. ring,
   a. chime, bell b. circle, sphere c. bracelet, necklace
   d. jewelry, money

6. hair,
   a. blond, brunette b. fur, coat c. shampoo, haircut
   d. teeth, nails

7. chimpanzee,
   a. baboon, gorilla b. tree, zoo c. ostrich, antelope
   d. jungle, Africa

8. jack,
   a. tire, repair b. card, deck c. ace, seven
   d. rabbit, pot

9. compass,
   a. magnet, needle b. stencil, ruler c. direction, bearing
   d. north, south

10. pancake,
   a. french toast, waffle
   b. breakfast, lunch
   c. butter, syrup
   d. bread, bagel

11. relish,
   a. enjoy, sentiment b. cucumber, pickle c. salt, pepper
   d. ketchup, mustard

12. earth,
    a. soil, dirt
    b. star, sun
    c. venus, comet
    d. moon, eclipse

13. difficult,
    a. unachievable, impossible
    b. test, exam
    c. challenging, hard
    d. easy, boring

14. doctor,
    a. nurse, hospital
    b. surgeon, artist
    c. illness, disease
    d. professor, lawyer

APPENDIX E

QUESTIONNAIRE TO TEACHERS

So that I can compare across classes, could you please circle how the lessons were taught? I need to know if the students did the exercises individually, in pairs, in groups, as a whole class (teacher directed), or as homework. Please return this to me at your earliest convenience via campus mail:

India Plough
English Language Center
1 International Center

I hope this is the last time I have to bother you!!!! Many thanks again.

September 30:
"Lisez le passage" and questions given as homework. Did you correct as a class?
Yes_____ No_____

October 1:
Page 152: Climats questions
individually pairs group class homework couldn't do

Page 154: clothing questions
individually pairs group class homework couldn't do

Page 156: "Bon voyage" fill-in-the-blank exercise
individually pairs group class homework couldn't do

Page 157: "Curiosité" exercise.
individually pairs group class homework couldn't do

October 4:
Page 160: "A Votre Tour"
individually pairs group class homework couldn't do

Page 161: "En Haute-Savoie"
individually pairs group class homework couldn't do

Question activity
individually pairs group class homework couldn't do

Dictée--5 points

October 5:
Page 173: "En famille" fill-in-the-blank.
individually pairs group class homework couldn't do

Page 176: "A votre tour" A
individually pairs group class homework couldn't do

Page 176: "A votre tour" B
individually pairs group class homework couldn't do

Page 177: "Entre vous" A
individually pairs group class homework couldn't do

Cartoon Activity
individually pairs group class homework couldn't do

October 7:
Page 179: "A votre tour: Une amitié sincère"
individually pairs group class homework couldn't do

Page 181: "A votre tour" A
individually pairs group class homework couldn't do

Page 181: "A votre tour" B
individually pairs group class homework couldn't do

Page 182: "Entre vous" A
individually pairs group class homework couldn't do

Page 182: "Entre vous" B
individually pairs group class homework couldn't do

Page 183: "Commentaire culturel"
individually pairs group class homework couldn't do

Dictée--5 points

October 8:
Memory tricks activity
individually pairs group class homework couldn't do

October 11:
"En cours de sociologie"
individually pairs group class homework couldn't do

Vente aux enchères
individually pairs group class homework couldn't do

October 12:
"Le cas de l'auto-stoppeur affamé" solution
individually pairs group class homework couldn't do

Page 205: B "Mes vacances"
individually pairs group class homework couldn't do

Page 207: Exercise at the bottom of the page
individually pairs group class homework couldn't do

Page 208: "Nostalgie"
individually pairs group class homework couldn't do

Page 210: "A votre tour" A
individually pairs group class homework couldn't do

Page 210: "A votre tour" B
individually pairs group class homework couldn't do

Page 214: "A votre tour"
individually pairs group class homework couldn't do

Scrambled word activity
individually pairs group class homework couldn't do

APPENDIX F

QUESTIONNAIRE TO STUDENTS

Please answer the following questions with as much detail as you can. Thank you!

1. Compare the first four weeks of French class with the last two weeks of class. Was there any difference in the way the class was conducted? _____ yes _____ no
   If yes, what was different? (lessons, amount of work...)

2. In the last two weeks, were you taught the passé composé? _____ yes _____ no
   If yes, when is the passé composé used?

3. In the last two weeks, were you taught where adverbs are placed in a French sentence? _____ yes _____ no
   If yes, where are the adverbs placed?

4. Are your mistakes corrected in class? _____ yes _____ no
   If yes, can you think of an example of when you were corrected?

5. Why are you taking French?

6. Do you think French is easy or difficult to learn?

7. Do you think French and English are similar or dissimilar? Can you think of an example of how they are similar?

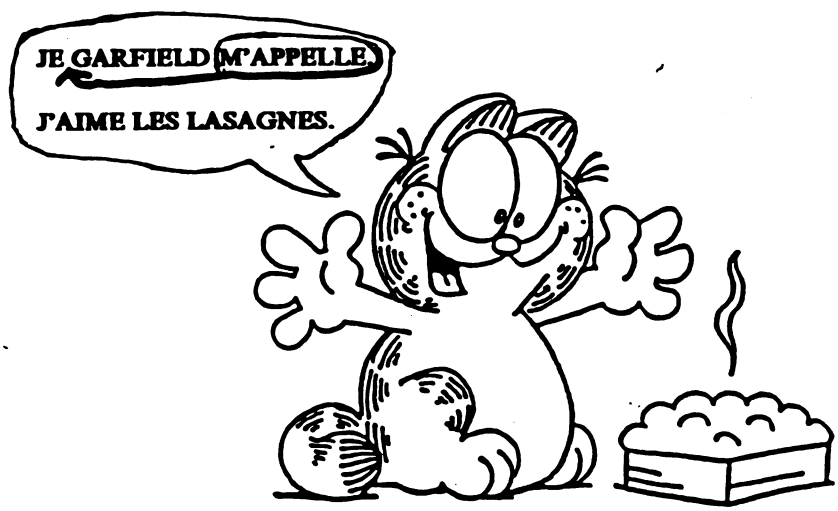
   Can you think of an example of how they are dissimilar?

APPENDIX G

WORD ORDER CORRECTION TASK

Read <u>all</u> of the sentences in the cartoon carefully. In some of the sentences, some of the words are in the wrong place. Use arrows to put them in the right place.

EXAMPLE:



GARFIELD EST GROS.

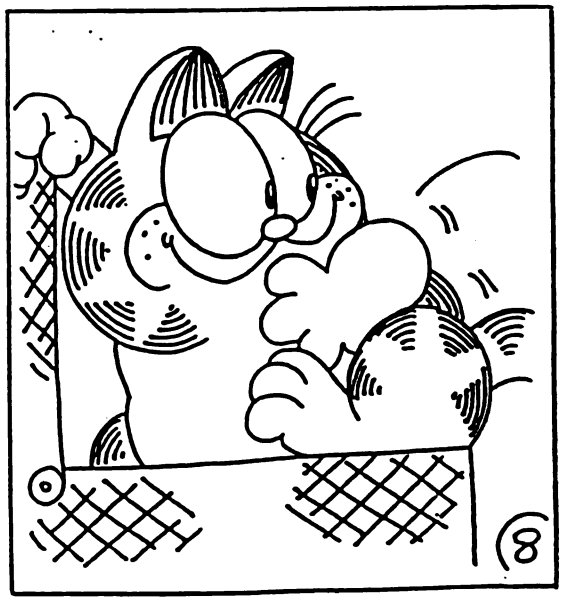
IL TROP MANGE.

GARFIELD ET JEAN VISITENT D'HABITUDE CAMP GRIZZLY EN JUILLET.

QUAND ILS ARRIVENT, JEAN SOIGNEUSEMENT GARE LA VOITURE.

JEAN DÉCHARGE LA VOITURE RAPIDEMENT.

GARFIELD OUVRE LE PANIER DE PIQUE-NIQUE LENTEMENT.



CHERCHE GARFIELD JEAN. IL MONTE SOIGNEUSEMENT DANS LE PANIER.

PLUS TARD, GARFIELD LENTEMENT SORT DE LA VOITURE.

RAPIDEMENT, JEAN DONNE LA PELLE À GARFIELD.

GARFIELD SOIGNEUSEMENT SE CACHE DANS UN TRONC D'ARBRE.

PLUS TARD CET APRÈS-MIDI, JEAN LENTEMENT RENTRE AU CAMP.

GARFIELD TROUVE VITE DU BOIS DE CHAUFFAGE.

SOUPER APRÈS, JEAN RACONTE UNE HISTOIRE.

10. a. Quelquefois Alexandra nettoie sa chambre.
    b. Alexandra nettoie quelquefois sa chambre.

only a is right only b is right both right both wrong don't know

11. a. Charles coupe attentivement le papier.
    b. Attentivement Charles coupe le papier.

only a is right only b is right both right both wrong don't know

12. a. Superman sauve toujours la vie des personnes.
    b. Superman sauve la vie des personnes toujours.

only a is right only b is right both right both wrong don't know

13. a. Pierre silencieusement ferme la porte.
    b. Pierre ferme silencieusement la porte.

only a is right only b is right both right both wrong don't know

14. a. Rapidement la jeune fille mange le Big Mac.
    b. La jeune fille mange rapidement le Big Mac.

only a is right only b is right both right both wrong don't know

15. a. Pierre parle habituellement français.
    b. Habituellement Pierre parle français.

only a is right only b is right both right both wrong don't know

16. a. Visiter New York Jean veut.
    b. Jean veut visiter New York.

only a is right only b is right both right both wrong don't know

17. a. Les enfants détestent les devoirs ordinairement.
    b. Les enfants ordinairement détestent les devoirs.

only a is right only b is right both right both wrong don't know

18. a. Les enfants sortent de l'école rapidement.
    b. Les enfants sortent rapidement de l'école.

only a is right only b is right both right both wrong don't know

19. a. Henri court chez lui rapidement.
b. Henri court rapidement chez lui.

only a is right only b is right both right both wrong don't know

20. a. Les étudiants silencieusement passent l'examen.
b. Silencieusement les étudiants passent l'examen.

only a is right only b is right both right both wrong don't know

21. a. Jeanne va au cinéma quelquefois.
b. Jeanne quelquefois va au cinéma.

only a is right only b is right both right both wrong don't know

22. a. Susan quelquefois joue du piano.
b. Susan joue du piano quelquefois.

only a is right only b is right both right both wrong don't know

23. a. Robert écrit attentivement avec sa nouvelle plume.
b. Robert écrit avec sa nouvelle plume attentivement.

only a is right only b is right both right both wrong don't know

24. a. Anne conduit attentivement sa nouvelle voiture.
b. Anne conduit sa nouvelle voiture attentivement.

only a is right only b is right both right both wrong don't know

25. a. Marie perd ses livres souvent.
b. Marie perd souvent ses livres.

only a is right only b is right both right both wrong don't know

26. a. Lizette a une grande très voiture.
b. Lizette a une grande voiture très.

only a is right only b is right both right both wrong don't know

27. a. Lentement le train part de la gare.
b. Le train lentement part de la gare.

only a is right only b is right both right both wrong don't know

28. a. Le vieil homme raconte lentement l'histoire.
b. Le vieil homme lentement raconte l'histoire.

only a is right only b is right both right both wrong don't know

29. a. David regarde quelquefois la T.V.
b. David quelquefois regarde la T.V.

only a is right only b is right both right both wrong don't know

30. a. Les jeunes filles lisent des livres tranquillement.
b. les jeunes filles tranquillement lisent des livres.

only a is right only b is right both right both wrong don't know

31. a. Les garçons lentement vont à l'école.
b. Les garçons vont lentement à l'école.

only a is right only b is right both right both wrong don't know

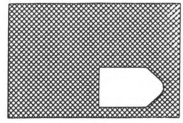
32. a. Jacque d'habitude boit du Coca.
b. Jacque boit d'habitude du Coca.

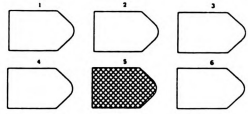
only a is right only b is right both right both wrong don't know

APPENDIX I

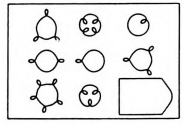
RAVEN'S STANDARD PROGRESSIVE MATRICES TEST
SAMPLE ITEMS

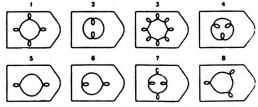
A2





E12





APPENDIX J

MULTIPLE REGRESSIONS

GROUPS COMBINED
ACCEPTABILITY JUDGMENT TASK
Pretest Correct Scores

Combined equation:

```
MTB > Regress 'precorr' 5 'SX' 'AGE' 'YR-F' 'INF' 'rav'.
The regression equation is
precorr = - 10.9 - 0.79 SX + 0.431 AGE + 0.752 YR-F + 0.26 INF + 0.201 rav
Predictor       Coef      Stdev    t-ratio       p
Constant     -10.90       15.26      -0.71   0.479
SX          - 0.785       2.299      -0.34   0.734
AGE          0.4312      0.6828       0.63   0.531
YR-F         0.7519      0.6806       1.10   0.276
INF           0.264       1.295       0.20   0.840
rav          0.2014      0.1141       1.76   0.085
s = 3.869       R-sq = 12.8%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    5       85.83       17.17      1.15    0.353
Error        39      583.95       14.97
Total        44      669.78

SOURCE       DF      SEQ SS
SX            1       13.88
AGE           1        2.46
YR-F          1       22.12
INF           1        0.75
rav           1       46.62
```

Fitted model:

```
Regress 'AJprecorr' 1 'rav'.
The regression equation is AJprecorr = - 1.87 + 0.225 rav
Predictor       Coef      Stdev    t-ratio       p
Constant     -1.870       5.268      -0.35   0.724
rav          0.2247      0.1061       2.12   0.040
s = 3.756       R-sq = 9.4%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    1       63.25       63.25      4.48    0.040
Error        43      606.53       14.11
Total        44      669.78
```

Correct Scores Posttest 2 - Pretest

Combined equation:

```
Regress 'AJC2-0' 6 'SX' 'AGE' 'YR-F' 'INF' 'ADVIN' 'rav'.
The regression equation is
AJC2-0 = - 23.0 + 2.85 SX + 1.58 AGE - 0.206 YR-F - 1.51 INF + 0.0727
ADVIN - 0.188 rav
42 cases used 3 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
Constant      -23.03       17.14      -1.34    0.188
SX             2.853       2.384       1.20    0.239
AGE           1.5787      0.6973       2.26    0.030
YR-F         -0.2059      0.7708      -0.27    0.791
INF           -1.510       1.519      -0.99    0.327
ADVIN        0.07269     0.05899       1.23    0.226
rav          -0.1875      0.1344      -1.40    0.172
s = 3.824       R-sq = 23.0%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6      152.55       25.43      1.74    0.141
Error        35      511.73       14.62
Total        41      664.29

SOURCE       DF      SEQ SS
SX            1       20.98
AGE           1       68.31
YR-F          1        0.70
INF           1        4.49
ADVIN         1       29.60
rav           1       28.46
```

Fitted model:

```
MTB > Regress 'DPC2-0' 2 'AGE' 'rav'.
The regression equation is DPC2-0 = - 3.6 + 1.09 AGE - 0.262 rav
42 cases used 3 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
Constant       -3.61       12.02      -0.30    0.766
AGE           1.0880      0.6115       1.78    0.083
rav          -0.2620      0.1293      -2.03    0.050
s = 3.833       R-sq = 13.7%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    2       91.33       45.66      3.11    0.056
Error        39      572.96       14.69
Total        41      664.29

SOURCE       DF      SEQ SS
AGE           1       31.01
rav           1       60.32
```

WORD ORDER CORRECTION TASK

Posttest 2 - Posttest 1 Correct Scores

Combined equation:

```
MTB > Regress 'DCgj2-1' 6 'SX' 'AGE' 'YR-F' 'INF' 'ADVIN' 'rav'.
The regression equation is
DCgj2-1 = 5.7 - 0.19 SX - 0.476 AGE + 0.631 YR-F - 0.607 INF + 0.0558
ADVIN - 0.0443 rav
42 cases used 3 cases contain missing values
```

Predictor	Coef	Stdev	t-ratio	p
Constant	5.72	10.97	0.52	0.605
SX	-0.193	1.525	-0.13	0.900
AGE	-0.4757	0.4460	-1.07	0.293
YR-F	0.6305	0.4931	1.28	0.209
INF	-0.6067	0.9716	-0.62	0.536
ADVIN	0.05579	0.03773	1.48	0.148
rav	-0.04432	0.08598	-0.52	0.609

s = 2.446 R-sq = 21.6%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	6	57.608	9.601	1.61	0.175
Error	35	209.368	5.982		
Total	41	266.976			

SOURCE	DF	SEQ SS
SX	1	13.174
AGE	1	18.472
YR-F	1	9.861
INF	1	0.000
ADVIN	1	14.511
rav	1	1.590

Fitted model:

```
MTB > Regress 'DCgj2-1' 2 'ADVIN' 'YR-F'.
The regression equation is DCgj2-1 = - 7.12 + 0.0582 ADVIN + 0.914 YR-F
42 cases used 3 cases contain missing values
```

Predictor	Coef	Stdev	t-ratio	p
Constant	-7.117	3.015	-2.36	0.023
ADVIN	0.05816	0.03047	1.91	0.064
YR-F	0.9138	0.4222	2.16	0.037

s = 2.386 R-sq = 16.8%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	2	44.889	22.445	3.94	0.028
Error	39	222.087	5.695		
Total	41	266.976			

SOURCE	DF	SEQ SS
ADVIN	1	18.205
YR-F	1	26.684

Pretest Error Scores

Combined equation:

```
MTB > Regress 'POGJE' 5 'SX' 'AGE' 'YR-F' 'INF' 'rav'.
The regression equation is POGJE = 30.6 - 2.95 SX - 0.791 AGE - 0.811 YR-F
- 0.376 INF - 0.124 rav
```

Predictor	Coef	Stdev	t-ratio	p
Constant	30.596	8.018	3.82	0.000
SX	-2.953	1.208	-2.44	0.019
AGE	-0.7913	0.3588	-2.21	0.033
YR-F	-0.8111	0.3577	-2.27	0.029
INF	-0.3756	0.6807	-0.55	0.584
rav	-0.12393	0.05998	-2.07	0.046

s = 2.034 R-sq = 28.6%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	5	64.630	12.926	3.13	0.018
Error	39	161.281	4.135		

```
Total         44      225.911
SOURCE        DF       SEQ SS
SX             1       10.472
AGE            1       12.335
YR-F           1       22.802
INF            1        1.370
rav            1       17.651
```

Fitted model:

```
MTB > Regress 'P0GJE' 2 'SX' 'rav'.
The regression equation is P0GJE = 13.0 - 2.40 SX - 0.138 rav

Predictor       Coef       Stdev    t-ratio        p
Constant      12.953       3.571       3.63    0.001
SX            -2.399       1.169      -2.05    0.046
rav         -0.13803     0.06307      -2.19    0.034
s = 2.146       R-sq = 14.4%

Analysis of Variance
SOURCE        DF           SS          MS         F        p
Regression     2       32.526      16.263      3.53    0.038
Error         42      193.385       4.604
Total         44      225.911

SOURCE        DF       SEQ SS
SX             1       10.472
rav            1       22.054
```

Posttest 2 - Posttest 1 Error Score

Combined equation:

```
MTB > Regress 'DEgj2-1' 6 'SX' 'AGE' 'YR-F' 'INF' 'ADVIN' 'rav'.
The regression equation is
DEgj2-1 = - 4.47 + 0.52 SX + 0.443 AGE - 0.969 YR-F + 0.211 INF - 0.0390
ADVIN + 0.0364 rav
42 cases used 3 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
Constant      -4.467       7.711      -0.58    0.566
SX             0.522       1.072       0.49    0.630
AGE           0.4429      0.3136       1.41    0.167
YR-F         -0.9688      0.3467      -2.79    0.008
INF           0.2110      0.6832       0.31    0.759
ADVIN       -0.03895     0.02653      -1.47    0.151
rav          0.03643     0.06046       0.60    0.551
s = 1.720       R-sq = 36.1%

Analysis of Variance
SOURCE        DF           SS          MS         F        p
Regression     6       58.588       9.765      3.30    0.011
Error         35      103.531       2.958
Total         41      162.119

SOURCE        DF       SEQ SS
SX             1        8.001
AGE            1       19.264
YR-F           1       22.705
INF            1        0.361
ADVIN          1        7.182
rav            1        1.074
```

Fitted model:

```
MTB > Regress 'DEgj2-1' 2 'YR-F' 'ADVIN'.
The regression equation is DEgj2-1 = 7.15 - 1.14 YR-F - 0.0434 ADVIN
```

```
42 cases used 3 cases contain missing values
Predictor       Coef       Stdev    t-ratio       p
Constant       7.149       2.135       3.35   0.002
YR-F         -1.1412      0.2989      -3.82   0.000
ADVIN       -0.04337     0.02157      -2.01   0.051
s = 1.689       R-sq = 31.3%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    2      50.816      25.408      8.90    0.001
Error        39     111.304       2.854
Total        41     162.119

SOURCE       DF       SEQ SS
YR-F          1       39.274
ADVIN         1       11.541
```

Pretest Error Subscore

Combined equation:

```
MTB > Regress 'pgj-e2' 5 'SX' 'AGE' 'YR-F' 'INF' 'rav'.
The regression equation is pgj-e2 = 6.66 - 0.950 SX - 0.123 AGE + 0.022
YR-F + 0.459 INF - 0.0722 rav
Predictor       Coef       Stdev    t-ratio       p
Constant       6.663       2.610       2.55   0.015
SX           -0.9498      0.3933      -2.41   0.021
AGE          -0.1230      0.1168      -1.05   0.299
YR-F          0.0221      0.1164       0.19   0.850
INF           0.4587      0.2216       2.07   0.045
rav         -0.07216     0.01952      -3.70   0.001
s = 0.6619      R-sq = 35.1%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    5      9.2254      1.8451      4.21    0.004
Error        39     17.0857      0.4381
Total        44     26.3111

SOURCE       DF       SEQ SS
SX            1       0.6831
AGE           1       0.5365
YR-F          1       0.2201
INF           1       1.8018
rav           1       5.9840
```

Fitted model:

```
MTB > Regress 'pgj-e2' 2 'SX' 'rav'.
The regression equation is pgj-e2 = 4.70 - 0.806 SX - 0.0732 rav
Predictor       Coef       Stdev    t-ratio       p
Constant       4.703       1.132       4.16   0.000
SX           -0.8060      0.3705      -2.18   0.035
rav         -0.07320     0.01999      -3.66   0.001
s = 0.6801      R-sq = 26.2%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    2      6.8850      3.4425      7.44    0.002
Error        42     19.4261      0.4625
Total        44     26.3111

SOURCE       DF       SEQ SS
SX            1       0.6831
rav           1       6.2020
```

Posttest 1 - Pretest Error Subscore

Combined equation:

```
MTB > Regress 'WE1' 6 'SX' 'AGE' 'YR-F' 'INF' 'ADVIN' 'rav'.
The regression equation is
WE1 = - 3.97 + 0.771 SX - 0.023 AGE - 0.009 YR-F - 0.251 INF + 0.00927
ADVIN + 0.0650 rav

Predictor       Coef       Stdev    t-ratio       p
Constant      -3.971       3.317      -1.20   0.239
SX            0.7708      0.4941       1.56   0.127
AGE          -0.0233      0.1448      -0.16   0.873
YR-F         -0.0086      0.1487      -0.06   0.954
INF          -0.2507      0.3246      -0.77   0.445
ADVIN       0.009265    0.009977       0.93   0.359
rav          0.06499     0.02461       2.64   0.012
s = 0.8203      R-sq = 19.9%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6      6.3433      1.0572      1.57    0.182
Error        38     25.5678      0.6728
Total        44     31.9111
SOURCE       DF      SEQ SS
SX            1      1.3014
AGE           1      0.0166
YR-F          1      0.1386
INF           1      0.0600
ADVIN         1      0.1370
rav           1      4.6898
```

Fitted model:

```
MTB > Regress 'WE1' 1 'rav'.
The regression equation is WE1 = - 2.29 + 0.0473 rav
Predictor       Coef       Stdev    t-ratio       p
Constant      -2.292       1.154      -1.99   0.053
rav          0.04734     0.02325       2.04   0.048
s = 0.8227      R-sq = 8.8%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    1      2.8069      2.8069      4.15    0.048
Error        43     29.1042      0.6768
Total        44     31.9111
```

MULTIPLE REGRESSIONS
INFERENCING GROUP

ACCEPTABILITY JUDGMENT TASK

Posttest 2 - Posttest Correct Scores

Combined equation:

```
MTB > Regress 'DPC2-1' 6 'SX' 'AGE' 'YR-F' 'ADVIN' 'ININF' 'rav'.
The regression equation is
DPC2-1 = - 17.3 + 1.70 SX - 0.086 AGE + 0.56 YR-F - 0.299 ADVIN + 5.26
ININF + 0.059 rav
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio       p
Constant     -17.29       21.70      -0.80   0.434
```

```
SX             1.701       2.803       0.61    0.550
AGE          -0.0862      0.8090      -0.11    0.916
YR-F           0.563       1.015       0.55    0.585
ADVIN        -0.2994      0.1673      -1.79    0.087
ININF          5.259       2.279       2.31    0.031
rav           0.0585      0.1643       0.36    0.725
s = 3.779       R-sq = 26.1%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6      111.11       18.52      1.30    0.300
Error        22      314.13       14.28
Total        28      425.24

SOURCE       DF      SEQ SS
SX            1       21.20
AGE           1        3.79
YR-F          1        0.03
ADVIN         1       10.04
ININF         1       74.24
rav           1        1.81
```

Fitted model:

```
MTB > Regress 'DPC2-1' 1 'ININF'.
The regression equation is DPC2-1 = - 9.81 + 1.52 ININF
29 cases used 1 cases contain missing values
Predictor       Coef        Stdev    t-ratio        p
Constant      -9.808        5.516      -1.78    0.087
ININF         1.5205       0.7349       2.07    0.048
s = 3.687       R-sq = 13.7%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    1       58.20       58.20      4.28    0.048
Error        27      367.04       13.59
Total        28      425.24
```

Posttest 2 - Posttest 1 Error Scores

Combined equation:

```
MTB > Regress 'DPE2-1' 6 'SX' 'AGE' 'YR-F' 'ADVIN' 'ININF' 'rav'.
The regression equation is
DPE2-1 = 3.1 - 0.87 SX + 0.566 AGE + 0.395 YR-F + 0.291 ADVIN - 5.13 ININF
- 0.036 rav
29 cases used 1 cases contain missing values
Predictor       Coef        Stdev    t-ratio        p
Constant        3.11        20.42       0.15    0.880
SX            -0.866        2.638      -0.33    0.746
AGE           0.5659       0.7614       0.74    0.465
YR-F          0.3955       0.9549       0.41    0.683
ADVIN         0.2912       0.1574       1.85    0.078
ININF         -5.133        2.145      -2.39    0.026
rav          -0.0357       0.1547      -0.23    0.820
s = 3.556       R-sq = 29.4%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6      115.98       19.33      1.53    0.215
Error        22      278.23       12.65
Total        28      394.21

SOURCE       DF      SEQ SS
SX            1        9.04
```

```
AGE             1       11.20
YR-F            1       12.28
ADVIN           1       10.68
ININF           1       72.11
rav             1        0.67
```

Fitted model:

```
MTB > Regress 'DPE2-1' 1 'ININF'.
The regression equation is DPE2-1 = 10.8 - 1.63 ININF
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio       p
Constant      10.811       5.211       2.07   0.048
ININF        -1.6274      0.6942      -2.34   0.027
s = 3.483       R-sq = 16.9%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    1       66.67       66.67      5.50   0.027
Error        27      327.54       12.13
Total        28      394.21
```

Posttest 2 - Pretest Error Scores

Combined equation:

```
MTB > Regress 'DPE2-0' 6 'SX' 'AGE' 'YR-F' 'ADVIN' 'ININF' 'rav'.
The regression equation is
DPE2-0 = 8.2 - 2.20 SX - 0.086 AGE + 0.59 YR-F + 0.270 ADVIN - 4.71 ININF
+ 0.065 rav
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio       p
Constant        8.15       22.01       0.37   0.715
SX            -2.198       2.844      -0.77   0.448
AGE          -0.0860      0.8208      -0.10   0.918
YR-F           0.586       1.029       0.57   0.575
ADVIN         0.2703      0.1697       1.59   0.126
ININF         -4.715       2.312      -2.04   0.054
rav           0.0650      0.1667       0.39   0.700
s = 3.834       R-sq = 25.4%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6      109.88       18.31      1.25   0.322
Error        22      323.36       14.70
Total        28      433.24

SOURCE       DF      SEQ SS
SX            1       15.46
AGE           1        0.04
YR-F          1       13.97
ADVIN         1       11.44
ININF         1       66.74
rav           1        2.24
```

Fitted model:

```
MTB > Regress 'DPE2-0' 1 'ININF'.
The regression equation is DPE2-0 = 9.27 - 1.58 ININF
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio       p
Constant       9.271       5.543       1.67   0.106
ININF        -1.5781      0.7384      -2.14   0.042
s = 3.705       R-sq = 14.5%
```

```
Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    1       62.69       62.69      4.57    0.042
Error        27      370.55       13.72
Total        28      433.24
```

WORD ORDER MANIPULATION TASK

Posttest 2 - Pretest Error Scores

Combined equation:

```
MTB > Regress 'DEgj2-0' 6 'SX' 'AGE' 'YR-F' 'ADVIN' 'ININF' 'rav'.
The regression equation is
DEgj2-0 = 2.2 + 3.05 SX - 0.057 AGE + 0.430 YR-F + 0.066 ADVIN - 2.04
ININF + 0.061 rav
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
Constant        2.22       14.75       0.15    0.882
SX             3.052       1.906       1.60    0.124
AGE          -0.0572      0.5501      -0.10    0.918
YR-F          0.4295      0.6899       0.62    0.540
ADVIN         0.0663      0.1137       0.58    0.566
ININF         -2.044       1.549      -1.32    0.201
rav           0.0615      0.1117       0.55    0.588
s = 2.569       R-sq = 28.2%


Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    6       56.914       9.486      1.44    0.246
Error        22      145.223       6.601
Total        28      202.138

SOURCE       DF       SEQ SS
SX            1       11.176
AGE           1        0.487
YR-F          1        8.608
ADVIN         1       21.188
ININF         1       13.455
rav           1        1.999
```

Fitted model:

```
MTB > Regress 'DEgj2-0' 2 'SX' 'ININF'.
The regression equation is DEgj2-0 = 5.61 + 3.73 SX - 1.36 ININF
29 cases used 1 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
Constant       5.613       3.622       1.55    0.133
SX             3.730       1.614       2.31    0.029
ININF        -1.3600      0.5276      -2.58    0.016
s = 2.419       R-sq = 24.8%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    2       50.040      25.020      4.28    0.025
Error        26      152.098       5.850
Total        28      202.138

SOURCE       DF       SEQ SS
SX            1       11.176
ININF         1       38.864
```

Pretest Error Subscores

Combined equation:

```
MTB > Regress 'pgj-e2' 4 'SX' 'AGE' 'YR-F' 'rav'.
The regression equation is pgj-e2 = 7.97 - 1.08 SX - 0.101 AGE + 0.020
YR-F - 0.0950 rav
Predictor       Coef       Stdev    t-ratio        p
Constant       7.970       3.350       2.38    0.025
SX           -1.0788      0.5091      -2.12    0.044
AGE          -0.1011      0.1550      -0.65    0.520
YR-F          0.0196      0.1808       0.11    0.915
rav         -0.09502     0.02622      -3.62    0.001
s = 0.7555      R-sq = 39.3%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    4      9.2288      2.3072      4.04    0.012
Error        25     14.2712      0.5708
Total        29     23.5000

SOURCE       DF      SEQ SS
SX            1      0.8333
AGE           1      0.8792
YR-F          1      0.0188
rav           1      7.4975
```

Fitted model:

```
MTB > Regress 'pgj-e2' 2 'SX' 'rav'.
The regression equation is pgj-e2 = 6.16 - 0.945 SX - 0.0974 rav
Predictor       Coef       Stdev    t-ratio        p
Constant       6.163       1.400       4.40    0.000
SX           -0.9452      0.4584      -2.06    0.049
rav         -0.09742     0.02518      -3.87    0.001
s = 0.7349      R-sq = 38.0%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    2      8.9190      4.4595      8.26    0.002
Error        27     14.5810      0.5400
Total        29     23.5000

SOURCE       DF      SEQ SS
SX            1      0.8333
rav           1      8.0857
```

PERFORMANCE BY CLASS SECTION

Tc1=Class Section 1
Tc2=Class Section 2
Tc3=Class Section 3
y intercept=Class Section 4

Acceptability Judgment Task

Posttest 2 Correct Score

```
MTB > Regress 'pst2corr' 3 'Tc1' 'Tc2' 'Tc3'.
The regression equation is
pst2corr = 9.00 + 5.31 Tc1 + 1.94 Tc2 + 5.60 Tc3
42 cases used 3 cases contain missing values
Predictor       Coef       Stdev    t-ratio        p
```

Constant	9.000	2.499	3.60	0.001
Tc1	5.308	2.773	1.91	0.063
Tc2	1.938	2.724	0.71	0.481
Tc3	5.600	2.850	1.97	0.057

s = 4.329 R-sq = 18.4%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	3	160.46	53.49	2.85	0.050
Error	38	712.11	18.74		
Total	41	872.57			

SOURCE	DF	SEQ SS
Tc1	1	47.80
Tc2	1	40.29
Tc3	1	72.37

MTB > Regress 'pst2corr' 2 'Tc1' 'Tc3'.
The regression equation is
pst2corr = 10.6 + 3.68 Tc1 + 3.97 Tc3
42 cases used 3 cases contain missing values

Predictor	Coef	Stdev	t-ratio	p
Constant	10.6316	0.9868	10.77	0.000
Tc1	3.676	1.548	2.37	0.023
Tc3	3.968	1.680	2.36	0.023

s = 4.301 R-sq = 17.3%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	2	150.98	75.49	4.08	0.025
Error	39	721.59	18.50		
Total	41	872.57			

SOURCE	DF	SEQ SS
Tc1	1	47.80
Tc3	1	103.18

Word Order Correction Task

Posttest 2 Correct Score

MTB > Regress 'PT2GJC' 3 'Tc1' 'Tc2' 'Tc3'.
The regression equation is
PT2GJC = 4.33 + 6.36 Tc1 + 4.54 Tc2 + 6.47 Tc3
42 cases used 3 cases contain missing values

Predictor	Coef	Stdev	t-ratio	p
Constant	4.333	1.799	2.41	0.021
Tc1	6.359	1.995	3.19	0.003
Tc2	4.542	1.960	2.32	0.026
Tc3	6.467	2.051	3.15	0.003

s = 3.115 R-sq = 24.8%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	3	121.500	40.500	4.17	0.012
Error	38	368.786	9.705		
Total	41	490.286			

SOURCE	DF	SEQ SS
Tc1	1	23.654
Tc2	1	1.343
Tc3	1	96.503

Posttest 2 Error Score

```
MTB > Regress 'PT2GJE' 3 'Tc1' 'Tc2' 'Tc3'.
The regression equation is
PT2GJE = 7.33 - 5.41 Tc1 - 3.83 Tc2 - 6.13 Tc3
42 cases used 3 cases contain missing values

Predictor       Coef        Stdev    t-ratio        p
Constant       7.333        1.315       5.58    0.000
Tc1           -5.410        1.459      -3.71    0.001
Tc2           -3.833        1.433      -2.67    0.011
Tc3           -6.133        1.500      -4.09    0.000
s = 2.278       R-sq = 34.7%

Analysis of Variance
SOURCE       DF          SS          MS         F        p
Regression    3     104.929      34.976      6.74    0.001
Error        38     197.190       5.189
Total        41     302.119

SOURCE       DF      SEQ SS
Tc1           1      12.506
Tc2           1       5.613
Tc3           1      86.810
```

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