AN ANALYSIS OF SECOND LANGUAGE PERFORMANCE IN TWO TYPES OF IMMERSION PROGRAMS

by

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Abstract

The purpose of this research was to investigate the learning of French and Hebrew as second languages. The subjects were 114 native English-speaking children from grades 1, 2 and 3 studying in two different immersion programs: an all-French program and a French/Hebrew program. Each child was administered an oral expression test in French. Each child in the French/Hebrew program was also administered the same test in Hebrew. The results show that (1) the children in the all-French program were more proficient in French than the children in the French/Hebrew program; (2) the improvement in the oral performance in French from grade 1 to grade 3 was more pronounced in the all-French program than in the French/Hebrew program; (3) the improvement in the oral performance from grade 1 to grade 3 was less consistent in Hebrew than in French. The results lead to the conclusion that similar strategies are applied to the learning of French and Hebrew as second languages. These findings suggest certain pedagogical implications.

Department of Education in Second Languages
Ph.D.

UNE ANALYSE DE L'EXPRESSION ORALE EN LANGUE SECONDE DANS DEUX PROGRAMMES D'IMMERSION DIFFERENTS

Ellen Adiv

Sommaire

La présente étude traite de l'apprentissage du français et de l'hébreu en tant que langues secondes. Les sujets étaient 114 élèves anglophones de 1^e, 2^e et 3^e années qui participaient à deux programmes d'immersion primaire: un programme entièrement français et un programme français/hébreu. Un test d'expression orale a été administré en français aux enfants des deux programmes. Le même test a été administré en hébreu aux enfants du programme français/hébreu. Les résultats ont démontré que (1) les enfants du programme français s'exprimaient mieux en français que les enfants du programme français/hébreu; (2) de la 1^e à la 3^e année l'expression orale en français s'est améliorée davantage dans le programme français que dans le programme français/hébreu; (3) l'amélioration de l'expression orale de la 1^e à la 3^e année a été moins constante en hébreu qu'en français. Les résultats portent à conclure que des stratégies communes s'appliquent à l'apprentissage du français et de l'hébreu en tant que langues secondes et que l'enseignement doit en tenir compte.

Le département de la didactique des langues secondes
Ph.D.

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INTRODUCTION

Immersion schools are a form of bilingual education whereby children are taught all or most of their school subjects in a language other than their mother tongue. Within the Canadian context this model usually refers to those schools which use French as the medium of instruction for native English-speaking children.

A large variety of such schools are presently operating across Canada. In Montreal three major types of immersion programs are reported: early immersion programs starting in kindergarten, mid-way immersion programs starting in grade 4 and late immersion programs starting in grade 7. In addition to these one-language immersion programs, there is also a two-language or double immersion program where two second languages (French and Hebrew) are learned simultaneously (Edwards & Smyth, 1976). Of these various types of immersion programs the double immersion program is both socio-culturally and linguistically the most complex. Its purpose is twofold: firstly, it aims, like the other immersion programs, at promoting functional bilingualism in the nation's two official languages and secondly, it aims at preserving ethnic and religious identity by teaching cultural aspects of Judaism through the medium of Hebrew.

Evaluation reports of the early immersion and late immersion programs have shown that students who participate in these programs score higher on French language tests than their peers who receive the regular 30 - 60 minutes daily French as a second language instruction (Barik & Swain, 1976; Buteau & Gougeon, 1978; Genesee, 1979; Genesee, Polich & Stanley, 1976). The reports, however, also note that, although students in early immersion programs become communicatively fluent in French, their performance remains notably inferior to that of their native speaking counterparts. Selinker, Swain and Dumas (1975) have proposed that these children may develop a dialect of their own, similar to a pidgin, due to the lack of contact with native French speaking peers.

The exact nature of such a dialect is extremely important since the deviant forms used in such speech are said to reflect the speaker's hypothesized grammar. According to Corder (1971) a learner dialect can be defined as:

> ... regular, systematic, meaningful, i.e., it (the dialect) has a grammar and is, in principle, describable in terms of a set of rules, some sub-set of which is a sub-set of the rules of the target social dialect. (p. 151)

In an attempt to characterize learners' speech patterns in immersion settings some researchers (Ruther & Le Coq, 1973; Setton, 1974; Spilka, 1976) have investigated the errors produced by children learning French in immersion programs. Other researchers have studied the development of specific French structures over time (Bongard, 1976; Hamayan, 1978; Tarone, Frauenfelder & Selinker, 1976). All these studies refer, however, to the development of French in one-language immersion programs. How do children learning French in the two-language immersion program perform when compared to those in the one-language program? So far the oral performance of students in the French/Hebrew immersion program has only been evaluated on global scales (Genesee, Tucker & Lambert, 1978, 1979). As Powell (1973) points out, such ratings tell us nothing as to the actual errors learners make when speaking the second language. Since the daily exposure to French is much shorter in the two-language immersion program (three hours on the average compared to five in the one-language immersion program during the first few grades) a comparison of the oral performance in these two types of immersion programs may provide some insights into the impact of time on second language learning in immersion settings.

The two-language immersion program also offers the opportunity to study the development of a third language. Lococo (1976) claims that though the strategies used in third language learning are the same as those used in second language learning, increased experience with different languages influences the types of errors produced. Lococo's subjects were, however, already partial bilinguals when they started learning the third language. One of the aims of the present study is to examine the learning of a third language when both the second and the third language are learned simultaneously.

Another aspect of second language development which has received much attention in recent years is the question whether the process of learning a second language is similar to that of mother-tongue acquisition. The thrust of the research has been directed at the learning of English as a second language. Researchers such as Dulay and Burt (1973, 1974 a & b) claim that second-language learners use the same strategies as the young child learning his mother tongue. In an attempt to show similarities between first-language acquisition and second-language learning Lococo (1975) examined the applicability of Slobin's (1973) first-language operating principles to the learning of Spanish and German as second languages. In order to appreciate the extent to which these operating principles are related to second language learning, irrespective of the particular language being learned, one has to examine their use in the learning of other second languages.

To summarize, among the many second language learning issues that still require a great deal of clarification, three have been selected for further investigation. The first issue pertains to the learning of French in a two-language immersion program compared to the learning of French in a one-language program. The second issue pertains to the simultaneous learning of French and Hebrew in an immersion setting. The third issue pertains to the applicability of Slobin's operating principles to the learning of French and Hebrew as second languages. The study will use error analysis as a tool for the assessment of second language performance in the different immersion programs.

In the first chapter a review of the literature bearing on three relevant issues will be discussed: bilingual schooling, theories of second language learning and methodological issues relevant to second language research.

In the second chapter the linguistic and psycholinguistic framework of the present study will be discussed and the questions this study proposes to answer will be presented.

In the third chapter the methodological procedures pertaining to the selection of the subjects, the administration of the tests and the method of analysis of the data will be described.

In the fourth chapter the results of the quantitative and qualitative analysis of the French data will be presented.

In the fifth chapter the results of the quantitative and qualitative analysis of the Hebrew data will be presented.

In the sixth chapter the applicability of Slobin's operating principles to the learning of French and Hebrew as second languages will be discussed.

In the seventh chapter the results from the present study will be summarized and a synthesis of the findings will be presented. In conclusion, some suggestions for possible classroom applications will be given.

CHAPTER I

REVIEW OF THE LITERATURE

In any study concerned with the second language learning three major issues should be considered:

1. The context in which the second language is learned, in this case bilingual schooling.
2. The theories currently debated concerning second language development.
3. The methodological issues related to second language research.

The present chapter will therefore present an overview of the relevant research findings available to date on these three topics.

Bilingual Schooling

The Factors Underlying Bilingual Schooling

Throughout the ages knowledge of a second language has not only been the result of political or demographic circumstances, but also been recognized as a sign of being well educated (Lewis, 1977). Furthermore, there have always been countries where ethnic minorities such as the Basques in Spain or the Welsh in Britain, or political circumstances as in Canada, Belgium and South Africa have demanded the establishment of some form of bilingual education (Stern, 1973). The concept of bilingual education is, however, too vast for an all encompassing definition on the basis of which effective bilingual programs can be planned. Mackey (1970) points out that:

> Since we are faced with various combinations of various factors, any single definition of bilingual schooling would be either too wide or too narrow to be of any use in planning and research, for what is true for one combination of factors may be untrue for another......What is needed, therefore, is not another definition of bilingual schooling or bilingual education, but a classification of the field to account for all possible aspects, in other words, a typology. (p. 597)

According to Mackey four factors contribute to the basic patterns of bilingual education: home, school, community and nation. The interplay between these factors gives rise to nine basic contexts in which bilingual education exists. Included in these nine contexts are situations of "natural bilingualism" i.e., situations where the learner is bilingual as a result of linguistic differences between his home and the community he lives in and "controlled bilingualism" i.e., situations where the formal educational system "creates" bilingual individuals. Within the latter situations Mackey distinguishes between single-medium schools and dual-medium schools. Single-medium schools are schools where all subjects are taught in one language, though a second language may be taught as a separate subject. The language used in the school is, however, not the child's home language and the single-medium school thus becomes a bilingual experience for the child. Dual-medium schools are schools where two languages, the child's home language and a second language, are used as the media of instruction.

In recent years the need for bilingual education in developing or emerging nations, on the one hand, and the trend towards cultural diversity through the preservation of the cultural heritage of ethnic minorities, on the other, have increased the demand for adequate bilingual schooling (Stern, 1973). In addition, the dissatisfaction with existing foreign language programs has prompted the development of a number of innovative bilingual programs (Tucker, 1977; Tucker Otanes & Sibayan, 1970). The direction bilingual programs take varies, however, from country to country and from population to population. It is more often based on deep societal issues than on pedagogical considerations. Spolsky (1977) considers the following six sets of factors as having a bearing on the operation of bilingual programs: linguistic, religio-cultural, sociological, psychological, political, and economic factors. Not all affect the program equally, but they all interrelate and the direction a specific program will take depends on the relative importance of any of these sets of factors as compared to the others. Aside from these six sets of factors there is a seventh one which is the educational one, but Spolsky points out that educational considerations are often insignificant both in the establishment and evaluation of the bilingual program.

Such a rigid division of factors may be difficult to maintain in view of the fact that some of the societal factors such as the religio-cultural and the linguistic ones are often closely interwoven. Furthermore social factors are often socio-economic in nature. Because of the complexity of the issues at hand it seems necessary to examine some of these factors separately prior to the description of a particular model of bilingual schooling.

Linguistic factors. Of all the factors the linguistic ones are possibly the hardest to define, for whilst they underlie the bilingual program implicitly, they serve in fact as a tool for the realization of the goals contained in the other factors. Thus the choice of languages involved may be determined by the socio-cultural needs of the population or by political considerations. The introduction of a second language may also be based on economic reasons as in the case of developing nations where the teaching of a world language provides access to modern science, technology and international commerce.

Aside from language choice, linguistic factors involve primarily the level of bilingualism the program desires to achieve because bilingualism is "a very relative attainment" (Chiasson, 1962:53). Proficiency in either language can vary in any of the four basic skills: listening, speaking, reading and writing. Furthermore, proficiency can vary as to the context in which language has been learned. Consequently "research in bilingualism has found it necessary to differentiate between the degree, domain and quality of bilingualism in individuals" (Stern, 1973:8).

Socio-cultural and/or religio-cultural factors. The cultural heritage of a people can be expressed through a variety of forms such as religious practices, holiday celebrations, food, dress, language, art and music. Wherever social groups come into contact with a more dominant culture some degree of assimilation into that culture, though often resisted, will take place and maintenance of ethnic identity involves deliberate efforts by members of that group towards such a goal. Fishman (1966) reviews over a thousand programs aimed at preserving the cultural identity of certain ethnic groups in the U.S. Most of these programs function as afternoon or Sunday schools. The development of all day programs (public or private) where a substantial part of the curriculum is devoted to the development of the ethnic language is relatively recent. Dinin (1962) notes with regard to the Jewish day schools that it is only in these programs that Hebrew is mastered effectively.

Sociological factors. Sociological factors underlie those issues which hold between different groups of people as they interact amongst each other. They involve concepts of social class, job opportunity and attitudes pertaining to one's own culture and towards that of the other group. The proliferation of bilingual Spanish-English programs for Spanish minority groups in the U.S. is due, to a large extent, to the assumption that improved knowledge of the minority language and culture would lead to improved performance in the majority language and hence to better integration into the majority social set-up. However, these programs have largely failed to achieve their goal, as have similar programs in Latin America where monolingual Indian children are taught initially in the vernacular prior to being taught via Spanish, the national language (Burns, 1968; Fishman, 1976; Paulston, 1976).

Yet there are throughout the world a number of very successful bilingual programs. One such example are the well documented Canadian immersion programs (Barik & Swain, 1976; Genesee, 1979; Lambert & Tucker, 1972; Tucker, 1977) where native English-speaking children are taught solely through the medium of French at the lower elementary grades.

The often quoted comparison between the Spanish-English bilingual programs in the U.S. and the French immersion programs in Canada (Cohen & Swain, 1976; Ervin-Tripp, 1970;

Paulston, 1976, 1977) leads to the conclusion that differences in the underlying sociological factors rather than differences in the programs themselves are responsible for the differences in scholastic and linguistic achievement between the two types of programs. Not only are the children in the Canadian immersion programs from middle and upper class homes, but their social group is secure within the larger community and their own language is not stigmatized. Whether within the classroom or outside of it the Anglo children do not have to function "in a milieu which both expects and blames them for their failures" (Erwin-Tripp, 1970: 314).

Psychological factors. Two types of psychological factors underlie bilingual education: attitudinal and cognitive. Attitudinal factors are psycho-sociological in nature. Lambert and Tucker (1972) claim that children in French immersion programs in Montreal develop more positive attitudes towards French Canadians than their peers who only receive 50 minutes a day of French instruction. It must, however, be noted that the actual contact between English and French speaking children is often minimal.

Cognitive factors center on the relationship between intellectual development and second language learning. Here there are two opposed views regarding both cognitive growth and second language development. On the one hand there is the negative theory which claims that the individual has a fixed capacity for language acquisition and that bilingual education results in the subject's poorer command of both languages than that which his monoglot counterpart has of a single language. In a large-scale psychometric survey carried out in the national schools of Ireland where English-speaking children are taught through the medium of Irish, Macnamara (1966) found that these English-speaking children were doing poorly in both Irish and English and that the teaching of mathematics via the medium of Irish had resulted in retardation on problem solving tasks.

On the other hand there is the positive theory of bilingualism based on views of Penfield and Roberts (1959) who claim that it is possible to acquire two languages with no greater effort than is involved in the learning of one. In an early study by Peal and Lambert (1962) a group of 89 bilinguals were compared to a group of 75 monolinguals chosen from six French schools in Montreal. It was found that the bilinguals performed significantly better than the monolinguals on both verbal and nonverbal intelligence tests, whilst no deficit was found in either general achievement or in French.

More recently, Cummins (1976) suggests that there may be a threshold level of linguistic competence which must be attained by a bilingual child in order for bilingualism to have a positive effect on cognitive functioning.

Political factors. Political factors range probably amongst the oldest factors instrumental in the language policies of school programs. When political considerations override all other factors the institution of a bilingual program often does not take the needs and desires of the population involved into adequate consideration. A case in point is the school system in Belgium where the vast majority of children receive their education in a language other than their mother tongue because only Flemish and French are recognized as official standard languages whilst dialects grouped under the term of Wallon are ignored in educational policies (Spolsky, 1977). A similar situation has recently developed in Quebec, where French language policies make it mandatory for certain non-francophone segments of the population to be educated entirely or predominantly in French.

Pedagogical factors. As already mentioned Spolsky (1977) notes that pedagogical issues are often ignored in the policies that shape bilingual education. Nevertheless a discussion of the factors that underlie bilingual education would not be complete without considering the pedagogical issues and specifically question regarding the availability of teachers and teaching materials.

Pacheco (1970) notes that one of the biggest problems facing bilingual education in the U.S. is the availability of of adequately trained teachers. The problem is twofold: teachers must be fluent in at least one of the two languages whilst being, at the same time, competent to teach subject matter in that language.

In the Canadian immersion schools many of the teachers are native French speakers of European or North African origin (Lambert & Tucker, 1972; Paulston, 1977; Setton, 1974). Lambert and Tucker note that if the second language is to be learned in as natural an environment as possible it is imperative to have teachers qualified to teach the subject matter at hand in the target language without using a second language method approach.

With regard to teaching materials Pacheco (1970) notes that most bilingual programs in the U.S. suffer from a shortage of adequate teaching materials because the materials available are usually either inappropriate in cultural content or in methodology since these materials are mostly produced for the teaching of foreign languages.

In the Canadian French immersion programs the availability of adequate materials seems less problematic. In reviewing a number of Canadian bilingual schools Stern (1973) notes that the texts used are mostly those used in monolingual French schools. Where such texts are too difficult, simplified texts are developed by specialists in conjunction with the local school board (Toefler, 1978, personal communication).

Immersion as a Model of Bilingual Schooling.

Within the context of Mackey's (1970) typology there are three types of dual medium schools:

Type I: Schooling is initially started in the mother tongue.
Type II: Schooling is started simultaneously in the mother tongue and in the second language.
Type III: Schooling is started in the second language.

The early immersion program falls under the third type of dual medium school and it is this type of school which will be described in some detail here.

The rationale underlying the immersion model is that a language is best learned when "language learning becomes incidental to the task of communicating with someone about some topic which is inherently interesting to the student" (Tucker & D'Anglejan, 1976: 207). Reading and writing skills are introduced initially in the second language and children are treated in every way as if they were native speakers of the second language. In Quebec the first such school was started on an experimental basis in 1965 on the south shore of the St. Lawrence river and has become known as the St. Lambert Experiment (Lambert & Tucker, 1972). It started out with two kindergarten classes and runs today up to and including grade 6. The program has been systematically evaluated every year and its success has led to the proliferation of similar programs throughout Canada. These programs have become known as early immersion programs.

The characteristics of these programs are as follows: In kindergarten the teachers address the children exclusively in French (the second language), the children are, however, free to respond in English (the children's mother tongue). Thus in kindergarten passive comprehension skills are stressed. After the first term in grade 1 children are required to use only French when addressing the teacher and even when speaking amongst themselves. Reading and writing are introduced in French in grade 1 with French being the sole medium of instruction. English is introduced either in grade 2 or in grade 3. At first English is used only in language arts classes, but by the end of grade 3, 40% of all instruction is in English. By grade 6 the proportion is reversed, i.e., 40% of the instruction is in French and 60% is in English. These proportions vary slightly depending on the school board under whose jurisdiction a particular school falls.

These programs have also been evaluated regularly (Barik & Swain, 1976; Genesee, 1978; Polich, 1973) and contrary to findings by some researchers in other countries (Macnamara, 1966; Modiano, 1973) the evaluations reported by the Canadian research teams show no deficit in reading and writing skills in the native tongue when these are introduced after reading and writing skills are initially taught in the second language.

In spite of the success of the Canadian programs, there are only a few such programs reported in the U.S. Cohen, Fathman and Merino (1976) describe a Spanish immersion program in Culvert City set up along the lines of the early immersion programs in Canada. John and Horner (1971) report on two French immersion programs in the U.S., one in New York City and one in Maine. One of the reasons for the paucity of these programs may be that there are no incentives for English speaking parents in the U.S. to want their children to become bilingual (Paulston, 1977; Tucker & D'Anglejan, 1976).

Within the Canadian context, another type of early immersion program must be noted, namely the two-language French/Hebrew immersion program (Edwards & Smyth, 1976). In this type of program a second and a third language are introduced in kindergarten and used as the media of instruction during the first three to four years of schooling. Reading and writing are introduced simultaneously in French and Hebrew. English (the children's mother tongue) is introduced as a language arts class in either grade 3 or grade 4. The use of English is expanded during the following grades to cover up to one third of the curriculum by grade 6. Careful evaluation of the program shows that here too the late introduction of reading and writing in the mother tongue does not affect the children's achievement in those skills when compared to the achievement of children in a type II Jewish day school, where reading and writing in the mother tongue are introduced in grade I (Genesee, Tucker & Lambert, 1978, 1979).

Because of the status of English and French as official languages in Canada and because of the desire of third language minority groups to maintain their native tongue (Ewanyshyn, 1977), the two-language immersion model is of special interest to those involved in the planning of dual medium schools in situations where the learning of three languages is necessary or desirable.

Theories of Second Language Development

In recent years theories of second language development have been concerned with the question of whether the process of learning a second language (hereafter L2) is similar to that of acquiring the first language (hereafter L1). Hence, much of the research related to L2 development has focused on the speech patterns produced by L2 learners and on the strategies these learners seem to use as they express themselves in the target language (Valdman, 1975). Based on these notions, several models for L2 development have been proposed (Corder, 1971, 1978; Dulay & Burt, 1973; Nemser, 1971; Sampson, 1978; Selinker, 1972). Two of these models which are especially relevant to the present study will be described here. The first one is the interlanguage hypothesis (Selinker, 1972) and the second one is the creative construction hypothesis (Dulay & Burt, 1973). Both these models regard errors in the L2 speech patterns as evidence of the learner's ability to formulate grammatical rules pertaining to the target language. They differ, however, with respect to the role of the L1 in the L2 learning process.

The Interlanguage Hypothesis

According to this model L2 learners develop an approximate system of the target language which is characterized by the presence of both L1 and L2 features plus those features which cannot be traced to either L1 or L2 and which are attributable to specific learner strategies. Selinker (1972) argues that L1 acquisition and L2 learning involve different sets of psychological processes, the main difference being that L2 learning is not maturational. Furthermore, the L2 learner's interlanguage is characterized by "fossilization" and "backsliding". In the first case, reference is made to those errors which do not disappear over time and, in the second, reference is made to those errors which reappear under special conditions such as tiredness or emotional stress. Moreover, Selinker claims that only 5% of adult L2 learners acquire native-like proficiency.

Frith (1975) argues that Selinker's 5% is "an unjustifiable pessimistic view of adult L2 learning" (p. 330). Selinker also proposes five strategies which characterize L2 learning: (1) overgeneralization of L2 features; (2) language transfer from L1; (3) transfer of training, a result of specific teaching methods; (4) strategies of L2 learning or redundancy reduction; (5) strategies of L2 communication, a result of demands made on the learner which go beyond what he has learned in L2. Valdman (1975) criticizes Selinker's strategies as too vague. Of the five strategies proposed by Selinker overgeneralization of L2 features and L1 transfer have received most attention in the literature. Taylor (1975) claims that L1 transfer and overgeneralization "appear to be two distinctly different linguistic manifestations of one psychological process: reliance on prior learning to facilitate new learning" (p. 73).

The issue of L1 transfer vs. overgeneralization of target language rules has led several researchers to investigate more closely the apparent cause of learner errors. It is within this framework that studies by Buteau (1970), Dušková (1969), Powell (1973), Richards (1971), Rojas (1971), Scott and Tucker (1974) were conducted. In these studies different target languages (French in the case of Buteau, Powell, Richards and Rojas; English in the case of Dušková, and Scott & Tucker) were examined. The subjects also spoke different native tongues and in several cases (Buteau, Dušková) a third language was involved. Furthermore, different types of tests were used in the various investigations. The results, however, consistently show that the proportion of intralingual errors, i.e., errors caused by difficulties inherent within a language itself, exceeds the number of interlingual errors, i.e., errors caused by L1 interference. Dušková finds that categories which are non-existent in the learner's L1 present the greatest degree of difficulty since the learner has no frame of reference. Buteau proposes that difficulty in mastering the correct grammatical structure is a function of the number of alternative choices involved and of the learner's awareness of "contextual cues". Powell finds that the greatest number of errors seems to be caused by reduction, i.e., deletion of certain morphological and/or syntactic elements. This point is extensively discussed by George (1972). His claim is that language learning strategies are aimed at reducing the burden on memory storage, hence the emphasis is on simplification wherever redundant features are concerned.

More recent studies by Lococo (1975, 1976), Painchaud-Leblanc (1978), Taylor (1975), White (1977) try to establish a relationship between intralingual and interlingual errors. Taylor investigated the acquisition of English interrogative structures by native Spanish speakers and found that even in a translation task intralingual errors far exceeded interlingual errors. He furthermore found that interference from L1 diminished as the students became more proficient in English and concludes that students rely more and more on the target language as their proficiency in that language increases. Lococo (1975) investigated errors made in Spanish and German by two different groups of native English students at two different levels of proficiency. Errors were grouped into six categories according to source of error: (1) intralingual; (2) interlingual; (3) dual, i.e., errors which occur when L1 doesn't have a rule for the corresponding L2 rule; (4) lack of transfer, i.e., both L1 and L2 have the rule but it isn't applied; (5) communicative, i.e., errors which occur because the relevant rules have not yet been taught; (6) overlap, i.e., errors which can be traced to more than one source. Lococo found that whilst intralingual errors prevailed in both groups, the hierarchy of the other categories differed for the two languages. She concludes that frequency of error type is also a function of the inherent difficulties within a given language. Painchaud-Leblanc (1978) investigated two groups of native English speakers learning French, one of the two groups being a slow-learning group, and found that the latter had proportionally more L1 interference errors than the faster learning group. White (1977), however, found that when investigating intermediate and advanced students of English as a second language the proportion of interference errors from L1 did not vary between the two groups. A stronger claim for interference errors is made by Meriö (1978) who examined 10,000 errors made by native speakers of Finnish and Swedish learning the other language. Basing herself on a contrastive analysis of the two languages, Meriö attributes most of the errors to different types of interference. Her definition of these different types of interference is, however, too vague.

Although the interlanguage hypothesis was originally posited for adult learners, recent studies pertaining to the learning of French in immersion schools in Canada (Harley & Swain, 1977; Ruther & Le Coq, 1973; Spilka, 1976; Tarone, Frauenfelder & Selinker, 1976) also reveal patterns of L1 interference that seem to fossilize as the children progress through the grades. These findings have led Selinker, Swain and Dumas (1975) to extend the "interlanguage hypothesis" (Selinker, 1972) to children in immersion settings where there is a scarcity of native French speakers.

Of the above-mentioned studies Spilka's study is of particular interest because it looks at L2 development in an immersion setting over a five-year period. Spilka examined errors in four grammatical classes: gender (articles and possessives), prepositions, verbs and pronouns. Pronouns were subdivided into (1) reflexive pronouns, (2) all other pronouns. She found that there was practically no decrease in the percentages of gender and verb errors from grade 1 to grade 6 and that there was an increase in the percentages of preposition and reflexive pronoun errors across those same grades. The only class in which there was improvement was the class of pronouns. Here Spilka notes that in all grades pronoun omissions were the most frequent type of error.

Cohen (1976) looked at L2 development over time in a Spanish immersion program in the U.S. He tested children at the end of grade 3 and again at the end of grade 4 and found that, whereas the percentage of masculine article errors had decreased over that period of time, the percentage of feminine article errors had increased. The analysis also revealed that there was an improvement in the production of verbs in the present indicative (singular and plural) whereas there was no improvement in the preterit forms of the verb. These findings suggest that a classification of gender or verb errors without further subclassification may fail to indicate areas of improvement.

With regard to Hebrew, Reitman (in preparation) examined the errors produced by students in a Jewish day school in Montreal. This study was also longitudinal. Two groups of students were tested. The first group was tested once in grade 7 and once a year later, in grade 8. The other group was tested once in grade 10 and once in grade 11. Reitman found that there was a greater decrease in the percentage of errors between grade 7 to grade 8 than from grade 10 to grade 11. Reitman concludes that the older students seem to reach a plateau beyond which there is little improvement in syntactic errors although morphological errors do continue to decrease. These findings suggest that morphological errors may be less prone to fossilization than syntactic ones. Such a hypothesis seems to emphasize the role of L1 interference in L2 learning since syntactic errors are more frequently traceable to such interference than morphological errors (Kennedy & Holmes, 1976). The study also reveals that even after eleven years of study the learner's L2 grammar still seems to be in a state of flux since for 64% of the students the percentage of errors actually increased during the one year period. The effect of having no native peer models seems as evident here as in the French immersion setting.

The Creative Construction Hypothesis

According to this model the process of L2 learning is similar to L1 acquisition. Hence, L2 learning is characterized by the same kinds of learning strategies used by children in learning their L1. The importance of these strategies lies in their hypothetical delineation of certain stages in language development. Brown (1973) proposes two major stages in L1 acquisition. During stage I the child attends to content words and to basic semantic-syntactic relations such as actor-action relations, whilst at stage II he or she starts attending to grammatical forms such as inflectional endings. Brown suggests that it is only after the expression of basic meanings has become automatic that the child will attend to the particularities of form. Brown, furthermore, found a certain order of acquisition for 14 grammatical functors in the learning of English as L1 (e.g., copula, auxiliary, plural, possessive, etc.) based on the semantic and grammatical complexity of each functor. Acquisition is defined by Brown as the correct usage of a given functor in 90% or more of its obligatory contexts.

It is this order of acquisition on which much of the L2 research has focused. In a cross-sectional study Dulay and Burt (1973, 1974a) tested 115 children of different linguistic backgrounds on nine of the 14 grammatical functors investigated by Brown (1973) in L1 acquisition and found that, like for L1, it was possible to establish a sequence of acquisition for the different functors. The sequence was, however, different from that found by Brown for L1. Furthermore, the order was not explainable in terms of semantic complexity, i.e., the number of meanings expressed by a functor such as plurality, possessive and third person inflection in the present tense of the verb, all of which are expressed in English by the morpheme 's'. The authors conclude that L1 acquisition processes must include the development of semantic concepts, whereas in the case of L2 learning these concepts have already been acquired and they can, therefore, not serve as an explanation for the acquisition in L2. A possible explanation of the particular sequence established for the various functors may be the type of exposure available to the L2 learner.

In order to show similarities between L2 learning and L1 acquisition some researchers have conducted longitudinal studies of young L2 learners. Ravem (1968) studied the acquisition of English wh-questions by his Norvegian children and found intermediate stages which closely resembled those found by Brown, Cazden and Bellugi (1969) in L1 acquisition. Milon (1974) studied the acquisition of negation by a Japanese child and again found a sequence of structures that resembled that of children studied by Brown et al. (1969). Cancino, Rosansky and Schumann (1974) studied the acquisition patterns of three Spanish-speaking children learning English in an informal setting and noticed that each of their three subjects produced different types of intermediate negative structures suggesting different learner grammars for each of their subjects, as had been found by Bloom (1970) for her three subjects in their early L1 acquisition stages. Hakuta (1974, 1976) investigated the development of English structures produced by a five-year old Japanese child. He found two aspects of L2 learning previously not discussed: (1) he found an early stage of "prefabricated patterns", i.e., complex structures such as "I know how to do it" which subsequently disappeared and were replaced by deviant structures such as "I know how do you spell Vino", once again reflecting a development parallel to that observed in L1 acquisition and (2) he found that straight interference from L1 was minimal though there was definite avoidance of certain structures.

The above studies have examined the learning of English as L2. The learning of other languages within the creative construction model has also been investigated. Bongard (1976) examined the development of the French pronoun system in an early French immersion school in Montreal. Children in grades 2, 4 and 6 were tested and their production was compared to that of francophone children. Bongard found that the immersion students' use of pronouns differed very much from that of the francophone children and that there was evidence of much avoidance in the use of pronouns. Bongard traces the difficulties the learners are experiencing to inherent difficulties in the French pronoun system as evidenced by the errors made by the francophone children in the lower grades.

Setton (1974) also investigated the learning of certain grammatical structures in grades 3 and 4 of an early French immersion program. Setton found that there were proportionally fewer errors in the masculine forms of the adjectives than in the feminine forms. There were also proportionally fewer errors in the singular verb forms of the present indicative than in the plural verb forms of the same tense. Setton attributes these results to a process of neutralization, whereby the unmarked member of a pair tends to replace the marked member under certain conditions (Greenberg, 1966). The term unmarked is defined by Greenberg as the uninflected, hence shorter member of the pair. Furthermore, it is the more independent one of the pair, so that it is the one used in neutral situations or in contexts where both the marked and unmarked member are included.

Frankel (1975) investigated the learning of Hebrew as a L2 in two Jewish day schools in Montreal. She tested 20 children in grades 1 and 3 and found that, here too, there were more correct occurrences of unmarked forms than of marked forms of adjectives and of verbs. Frankel, however, also found that some marked forms, such as past tense verbs, were overgeneralized to inappropriate contexts. She suggests that this pattern similarly reflects a strategy used in L1 acquisition.

The age factor in the creative construction model. The studies described above referred to young L2 learners. The question arises as to whether L2 learning by adults exhibits similar characteristics. An adult within the context of L2 learning has been defined as 12 years and up, i.e., after puberty. This division is based on findings by Penfield and Roberts (1959) and Lenneberg (1967) claiming that puberty marks a critical period in language acquisition, after which time the brain loses its plasticity, a process referred to as lateralization.

Bailey, Madden and Krashen (1974) found that when the same testing procedure was used with adults, a sequence similar to that established by Dulay and Burt (1973, 1974 a & b) emerged. Again the fact that the learners were of different linguistic backgrounds did not significantly affect the results, pointing to the intralingual nature of the errors. Fathman (1975) tested 200 subjects aged 6-15 using a procedure very similar to Dulay and Burt's and found the same order of acquisition for younger students (ages 6-10) as for older ones (ages 10-15). She found, however, differences in the rate of learning based on the two age groups. The younger children rated higher on phonology whereas the older children received higher scores on the morphology and syntax subtests. These results conform with those of Ervin-Tripp (1974) who similarly found that older children learning French as a second language in a French speaking environment were more efficient learners than younger ones. Hanania and Gradman (1977) and Larsen-Freeman (1976) show that even when different methods for oral data collection are used the morpheme acquisition order in adults closely resembles that of the Dulay and Burt studies with children. Krashen and Selinger (1975) suggest that older learners have more efficient strategies for L2 learning related to the onset of Piaget's stage of formal operations which is set at around age 14 (Ginnsburg & Opper, 1969).

L1 Acquisition Strategies and L2 Learning

Most of the above studies referring to older learners have focused once again on the order in which certain English morphemes are learned in L2. However, the researchers offer no explanation for the order they found. Hatch and Wagner-Gough (1976) note that L1 strategies such as perceptual saliency, word order and communication importance can be helpful in explaining L2 data. A number of L1 strategies pertaining to the acquisition of linguistic forms have been suggested by Slobin (1973). According to Slobin the young child uses these strategies (referred to as operating principles) regardless of the language he is exposed to. Slobin sees cognitive development as preceding linguistic development. Hence Slobin postulates that the order of development of linguistic form is invariant across languages. However, the rate of acquisition of a linguistic form, i.e., the time it takes for a child to master that form, is influenced by the linguistic complexity of the structure used by a particular language to express meaning. The operating principles are seen as guiding the child in his attempts to interpret and produce speech. From these operating principles more narrowly defined strategies or universals are derived according to which the child constructs his L1 grammar. Slobin proposes seven operating principles, five of which are further subdivided into a number of universals. Slobin notes that the more narrowly defined the universals are, the more language specific they become. Aside from perceptual saliency and word order, the operating principles pertaining to production deal with the various stages of development through which a linguistic form passes as it evolves from the child's first attempts to express the corresponding semantic notion to full mastery of the form. The three most basic concepts in this development are that (1) the first linguistic forms to be used by the child are the unmarked ones, (2) linguistic forms, marked and unmarked, are overgeneralized to inappropriate contexts and (3) linguistic markers that are semantically based are learned prior to markers not so based.

Lococo (1975) found that five of Slobin's universals could be applied to the learning of Spanish and German as L2. Among these were instances of overgeneralization of a marked form (the subjunctive mood in German) and late emergence of grammatical markers that were not semantically based (gender in Spanish and German). The universals that were seen as not applicable were those pertaining to word order and those related to the order of development of linguistic forms. With regard to the order of development, Lococo notes that such an order is not applicable in situations where the L2 is learned formally, but that it may be applicable to L2 learning in natural settings or in immersion programs.

Communication Strategies

Other researchers have described the linguistic performance in L2 in terms of communication strategies which have been defined by Tarone, Cohen and Dumas (1976) as "a systematic attempt by the learner to express or decode meaning in the target language, in situations where the appropriate systematic target language rules have not yet been formed (p. 78)". Frauenfelder and Porquier (1979) have succinctly summarized these strategies as (1) formulation strategies, (2) avoidance strategies and (3) appeal to authority strategies. Of special interest are formulation and avoidance strategies because, unlike appeal to authority strategies (where the speaker asks for help) they do not result in interruption of the message being communicated. Both formulation and avoidance strategies lead to lexical substitution, paraphrasing and possible overelaboration (Levenston, 1971).

Avoidance strategies have been examined by Hamayan and Tucker (1979) who investigated the learning of five French structures in two types of learning situations (1) children in grades 3 and 5 learning French in an early immersion program, and (2) children in grades 3 and 5 learning French in a regular French school (submersion). They found that the children in the submersion group, who were generally more fluent in French than the children in the immersion group, avoided certain structures significantly more often than the children in the immersion group. Hamayan and Tucker conclude that more fluent students may be better able to avoid structures they are not sure of.

L1 Interference Within The Creative Construction Hypothesis

By contrast to the interlanguage hypothesis, transfer from L1 plays only a minor role in the creative construction hypothesis. Dulay and Burt (1974b) claim that only 4% of the errors in their sample could be attributed to L1 interference. Ravem (1968) found some interference from Norvegian in the learning of English negations. Wode (1976) similarly noted some interference from German in the learning of English negations. On the other hand, Milon (1974) found no evidence of L1 interference from Japanese in the learning of English negations. Wode (1976) claims that interference will only occur when "L1 and L2 have structures meeting at a crucial similarity measure" (p. 25). Hakuta (1976) notes that while the percentage of actual L1 interference errors may be low, the avoidance of certain structures in the L2 may be attributable to the influence of the L1.

It is of interest to note that whilst the presence of a certain amount of L1 interference has been acknowledged in the above studies, none of the researchers, with the exception of

Dulay and Burt (1974b) have attempted to quantify the amount of interference or to list the errors according to the probable cause of the error. Instead, the emphasis has been on interpreting L2 development in terms of either L1 acquisition or communication strategies. This may be due not only to the interest in establishing parallels between L2 learning and L1 acquisition, but also to the difficulty in tracing errors to any one source (Jain, 1974).

Methodological Issues Related to L2 Research

In L2 research it is necessary to examine carefully the conditions under which the research was carried out. The following two aspects of research design should be considered:

(1) The type of study.

(2) The data collection procedures.

Type of Study

Studies aimed at examining L2 development can be grouped into two types of studies: longitudinal studies and cross-sectional studies.

Longitudinal studies generally parallel the type of study used to describe L1 development (Brown, 1973). Most of the longitudinal studies in L2 were carried out by researchers who observed individual children over a period of time (Hakuta, 1974, 1976; Milon, 1974; Ravem, 1968; Wode, 1976; etc.). Longitudinal studies enable the researcher to follow closely any changes in the learner's interim grammar. However, they are difficult to carry out in classroom situations, both because the continuous access to subjects may not always be possible (permission from administration and teaching staff are often difficult to obtain) and because of changing school population.

In cross-sectional studies (Buteau, 1970; Dušková, 1969; Painchaud-Leblanc, 1978; Powell, 1973; etc.) the data is collected from a fairly large segment of the population. The subjects are usually tested on a number of different measures in order to elicit a large corpus of data which will yield (1) a variety of errors, and (2) a sufficient number of the same error type in order to justify some kind of generalization about it. The advantage of cross-sectional studies is that the data can be collected in a relatively short period of time.

More recently, data from cross-sectional studies has been used in establishing "sequences of acquisition" in L2 learning as was described above in the studies by Dulay and Burt (1973; 1974 a & b), Bailey, Madden and Krashen (1974) and Larsen-Freeman (1976). The validity of such procedures has been criticized by Hakuta (1976), Tarone et al. (1976) and Valdman (1975). Rosansky (1976) shows that cross-sectional and longitudinal studies do not necessarily match and warns that looking at cross-sectional studies as a continuum which reflects a development process may lead to erroneous conclusions.

An alternative procedure which aims at combining some of the advantages of longitudinal studies with a cross sample of population is to compare data collected at two or three grade levels within the same institution (Bongard, 1976; Hamayan, 1978; Spilka, 1976; etc.). The assumption here is that the emerging linguistic pattern at each grade level represents different stages in the acquisition of the features under investigation.

Both longitudinal and cross-sectional studies can be either narrowly focused, i.e., they concentrate on the study of a limited number of linguistic features (Harley and Swain, 1977; Ravem, 1968; etc.) or they can be broadly focused, i.e., they consider a wide range of errors (Painchaud-Leblanc, 1978; Hakuta, 1976; etc.).

Data Collection Procedures

Data collection procedures have been much criticized for their failure to apply rigorous methodology such as systematic manipulation of variables under controlled conditions. Procedures for data collection can be classified either on basis of the skills that are being tested (receptive or productive) or on basis of the form of language that is being tested (oral or written).

The tests that invoke the learner's receptive skills demand only that the learner recognize certain features in the L2. The learner makes associations between his knowledge of the language and the data presented to him, but is not required to actively combine linguistic elements stored in his mind. Within this category of tests are tests of comprehension (oral or written) such as multiple choice questions, matching exercises, etc. (Valette, 1975).

The tests that require the learner to actively perform in the L2 can range from the production of certain key structures to the actual demonstration of communicative competence, i.e., the ability of the learner to express himself effectively in the L2. Both specific structures and overall ability of expression in the L2 can be tested through either oral or written tests. Underlying these two types of tests are two basically different approaches to language testing. The first is the psychometric-structuralist approach which advocates the use of discrete-item tests for objective, accurate measurement of language proficiency (Carroll, 1961; Lado, 1961). The other is an integrative approach where the emphasis is on the assessment of the learner's global capacity in the L2 (Oller, 1976).

a) Written Tests

Written tests which measure the production of specific structures consist usually of substitution tests, translation and sentence completion (Lado, 1961). Tests which measure overall language proficiency include among others dictation and composition (Valette, 1975). A recently developed written test which seems to answer the criterion of integrative testing is the cloze test where the learner has to complete a given passage from which every nth word has been deleted (Oller, 1973).

A disadvantage of written tests lies in the fact that they demand a certain degree of literacy on the part of the learner and are thus not suitable for very young children or for adults who did not formally study the language (Spolsky, Murphy, Holm & Ferret, 1972). Another disadvantage of written tests is their relationship to IQ. Genesee (1976) found that a learner's performance in the L2 depended on his IQ level when reading and writing were involved, whereas performance in interpersonal communication tests did not depend on IQ level. These findings suggest that when the goal of the study is to investigate oral competence there may be limitations on the use of tests which involve reading and writing skills.

b) Oral Tests

According to Clark (1978) oral production tests can be subdivided into two major categories: direct oral production tests and indirect oral production tests. Clark claims that only tests which represent true-life situations of oral communication are direct oral tests, whilst all other speaking tasks, even though they require active speech production on the part of the learner, are indirect oral production tests. Frequently, direct oral production tests are not so narrowly defined and include various types of free narration or picture guided narration (Valette, 1975). It should be noted that although these tests elicit production, they also include comprehension since otherwise there would be no meaningful communication.

The oral interview. This type of test has been developed primarily as a job placement test for jobs requiring oral fluency in a second language (Clark, 1978; Jones, 1975). The test can be given on several levels starting from simple introductions, comments on the weather, etc., to performing a task such as giving directions, renting an apartment or discussing problems relevant to the learner's future job (Wilds, 1975). Another level of the test requires role playing such as acting as an interpreter for someone else.

A variation of this technique requires the subject to talk a few minutes about a given subject (Painchaud-Leblanc, 1978; Valette, 1975).

The oral interview method has also been used with children (Harley & Swain, 1977; Naiman, 1974; Spolsky et al., 1972).

Spolsky et al. note that the oral interview presents a problem with children in that it does not always lead the child to speak at great length.

Oral production with pictures. The use of pictures in eliciting oral speech is one of the most frequently used techniques in oral production tests. The pictures can be used for discrete-point testing in which case they are so constructed as to elicit only a single word or sentence, e.g., drawings depicting actions such as a boy jumping vs. several boys jumping will elicit the corresponding grammatical structures. Both Lado (1961) and Valette (1975) emphasize the point that the pictures must be so designated as to present a single problem only. Like the discrete-point comprehension tests, these tests can be constructed on different grammatical levels (phonological, morphological, syntactic and lexical). It is obvious that such tests do not test communicative competence.

When pictures are used to test overall language proficiency they usually require the learner to narrate what he sees in the picture or to make up a story about the picture (Valette, 1975). Frequently, a set of pictures is used (Lambert & Tucker, 1972; Polich, 1973). A test which combines both discrete-point testing and integrative-skill testing is the Bilingual Syntax Measure (Burt, Dulay & Hernandez, 1974) where the tester asks specific questions related to the pictures.

Another type of test using pictures consists of asking the learner to describe in a single sentence one picture out of a set of four, without the tester initially knowing which picture the learner has selected. The tester has then to be able to identify the picture (Upshur, 1973).

With adults pictures are often replaced by written instructions. These instructions are sometimes given in the learner's L1 (Powell, 1973; Seright, 1975).

Elicited imitation. Elicited imitation is a technique whereby the learner must repeat a sentence which he hears either on tape or from the tester. The assumption here is that if the sentence is longer than the maximum sentence length which the learner can store in his short term memory, he will not be able to repeat it verbatim, but will have to process it for comprehension and use his own target language grammar for production. Elicited imitation was first used with very young native speakers (Slobin & Welsh, 1973). It has since been used both with adults and with children in L2 testing (Markman, Spilka & Tucker, 1975; Naiman, 1974). Swain, Dumas and Naiman (1974) argue that:

> The extra memory aid of having the correct structure present in the model sentence to be imitated allows the S to imitate structures which are just emerging in his production system, structures he rarely is able to produce spontaneously. (p. 72)

Elicited imitation, therefore, presents two related advantages: (1) it can go beyond production and give a better picture of the learner's grammar in the target language, and (2) it enables the tester to elicit structures which may otherwise be avoided. Naiman (1974) notes that where specific structures are to be investigated, these structures must be tested in all possible positions (initial, medial and final) within the sentence.

Cook (1973) used a slight variation of the above test. She showed a picture with each sentence and occasionally asked a question to ensure comprehension. It should be noted that whilst this latter technique may ensure comprehension, it may also detract from the purely memory based elicited imitation task.

With regard to the elicited imitation technique as a valid instrument for measuring oral production proficiency, two issues must be considered. Firstly, Naiman (1974) found that performance on imitation tasks sometimes exceeded performance on production tasks so that the data obtained from elicited imitation tasks does not necessarily represent the learner's true proficiency in oral production. Secondly, and related to the first issue, there is the factor of memory capacity which may affect the imitation task differently for different learners, depending on the individual learner's short term memory (Swain, Dumas & Naiman, 1974).

Story retelling. This technique combines aspects of spontaneous or free speech production and of elicited imitation. The tester tells the learner a story accompanied by pictures relevant to the story. The learner is then asked to retell the story. Specific structures that the tester may want to test can be built into the story (Hamayan, 1978; John & Horner, 1971; Valette, 1975). Here again the assumption is that the learner will have to use his own target language grammar to produce the necessary sentences. Hamayan (1978) claims that the test differs from elicited imitation in that the task stresses the expression of ideas within a given context. It is thus communicatively relevant to the subject.

A variation of this test has been referred to as an oral cloze test (Streiff, 1978). Here the tester reads a story to the learner stopping after every nth word. As the tester stops the learner is required to fill in the following word. If the learner has not provided the word within a given amount of time (5 seconds), the tester continues to read up to the next stop. Seright (1975) used a similar technique requiring the learner to insert the correct verb form in an orally given sentence. Whilst the rationale for such procedures is that it measures global language capacity since the learner must interpret the entire sentence given to him, it is doubtful whether the recall of single words or forms is indicative of oral proficiency.

In the preceding pages a number of the more frequently used oral production tests have been briefly described. It should be noted that researchers often use a combination of several tests in order to tap different aspects of language proficiency. Aside from the tests mentioned above, there are a great variety of L2 proficiency tests which measure both active and passive language skills. A comprehensive listing of such tests is given by Savard (1977). It should, however, be noted that most of these tests are geared to older learners.

Summary

Three major issues have been discussed in this chapter; bilingual education, theories of L2 development and methodological problems related to L2 research.

In view of the proliferation of bilingual educational programs in recent years, factors which underlie the operation of bilingual programs have been discussed in some detail. It has been suggested that in most cases political, societal and economic factors determine the direction a bilingual program takes and that educational considerations are often insignificant in the establishment and evaluation of these programs.

Three types of bilingual programs have been noted and two early immersion programs (a one-language French program and a two-language French/Hebrew program) have been described in some detail.

Theories of L2 development have been discussed within the framework of two hypothesis: that of interlanguage and that of creative construction. It has been noted that in the interlanguage hypothesis L1 interference and fossilization play an important role, whereas in the creative construction hypothesis L1 strategies and acquisition sequences are seen as the most characteristic features of L2 learning. Both models are based on findings from error analysis and a number of relevant studies pertaining to the learning of different second languages have been reviewed. Furthermore, major stages and strategies in L1 acquisition have been described.

In the third part of the chapter questions related to two major aspects of researcher's methodology have been considered: the type of study and the procedures for data collecting. Within the latter context the distinction between discrete-item and integrative-skill bases tests has been noted. The disadvantages of using written tests for measuring oral proficiency have been discussed and emphasis has therefore been placed on the description of oral tests. It has been argued that an accurate measure of oral proficiency requires the testing situation to represent as closely as possible a true communicative situation. It was noted that the oral interview which represents the most direct measure of oral proficiency, may not be suitable for young children and that picture related tasks may be more meaningful for them.

In the following chapter the theoretical framework and the goals of the present study will be described.

CHAPTER II

THEORETICAL FRAMEWORK OF THE PRESENT STUDY

Before turning to the investigation itself, the theoretical framework within which the research has been conducted must be defined. Since research in language learning must draw on both linguistic and psycholinguistic theories, each of these aspects will be discussed.

The Linguistic Model

In order to account for observed language behavior a general linguistic theory is needed. Following Chomsky's publication of *Syntactic Structures* (1957) and *Aspects of the Theory of Syntax* (1965), transformational grammar has been the dominant framework of modern linguistics. It has, however, been argued that such a grammar has serious drawbacks when second language learning is considered since our knowledge of the learner's second language grammar is at present limited to those surface structures which the learner utters (Tarone, Frauenfelder & Selinker, 1976). Most of the recent studies in error analysis are based on some type of surface structure grammar (Cohen, 1976; Hamayan, 1978; Lococo, 1975; Painchaud-Leblanc, 1978; Powell, 1973). For the present study Halliday's "Systemic Grammar" (1976) seems to present a suitable framework. To Halliday "language is patterned activity" (p. 56) and grammar is a system whereby a set of choices is available together with a statement of conditions under which each choice is to be made. Basic to Halliday's grammar are four categories: unit, structure, class and system.

The unit. The unit is the category that accounts for "stretches that carry grammatical patterns" (p. 57). The relation among the units, going from the largest to the smallest, is such that each unit consists of one or more units of the rank below. Thus the units of grammar form a hierarchy as illustrated in the following diagram:

Units

Rank ↕
sentence
clause
group/phrase
word
morpheme

(Halliday, 1976:58)

The structure. The structure is "an arrangement of elements ordered in places" (p. 60). The term 'element' refers only to the labelled structural place. A structure is always the structure of a given unit and each element in the structure is the place of operation of a member of the unit below: consequently, the lowest unit has no structure. The minimum number of elements necessary to account comprehensively for the operation of the structure in a given unit constitute the unit's primary structure. Thus, in English the elements 'subject', 'predicate', 'complement' and 'adjunct' are elements of the primary structure of the clause. In description these elements are represented by symbols (S = subject, P = predicate, C = complement, A = adjunct) and structures are stated as "linear arrangements of symbols" (p. 61). All clause structures can thus be stated as combinations of S, P, C and A. Secondary structures arise when the elements within the primary structure vary in number or in type. Thus each of the elements S, P, C, A, can have one or several exponents giving rise to combinations such as SPC_1C_2, where C_1 can be a direct object (complement) and C_2 an indirect object. As structures are more narrowly defined the network of relations between the grammatical categories becomes more complex and names for the description of these narrowly defined structures may have to be arbitrarily chosen.

The class. The class is a grouping of members of the same unit which is functionally defined by its operation in the structure of the unit above. There is thus a constant two-way relationship between structure and class. Within the category class a distinction is made between primary classes and secondary classes. Primary classes are those classes that stand in a one/one relation to elements of primary structures; e.g., the class corresponding to predicator is verbal group. Secondary classes can be derived either from primary classes, in which case they represent a finer differentiation of elements within the primary class; e.g., determiners within the class 'nominal group'; or they may be derived from secondary structures whenever a restriction differentiates between members of a primary class; e.g., number (sing./plur.) within the nominal group. Secondary classes which are derived directly from primary classes are referred to as sub-classes to show that they are not derived through reference to secondary structures. A secondary class, such as determiners, can in itself be subdivided into a number of more narrowly defined sub-classes such as specific/non-specific, selective/non-selective. These are referred to as micro-classes.

The system. The system is the statement of choices available at each level whereby the element of the level below is incorporated into the level above. The system ensures that a choice is made from a number of similar options in order for a class (or subclass) to enter into relation with the structure of the unit above. The system thus represents the final requisite for linking class, structure and unit to the actual linguistic data.

The basic difference between structure and system is that the former involves a chain relation whilst the latter involves a choice relation. Thus, the structure 'subject + predicate' is characterized by the place occupied by each of the elements, whilst the system of number (sing./plur.) is characterized by the fact that one or the other has to be chosen. One may thus distinguish between chain classes and choice classes. Primary classes are always chain classes. Secondary classes can be either chain classes or choice classes. It should be noted, however, that once the choice has been made the ensuing relation between two classes as they enter the structure of the unit above is no longer one of choice.

Halliday notes that the four basic categories of unit, structure, class and system make possible a comprehensive description of the grammars of languages, though the elements or arrangement of elements within each category may vary from language to language. As an example, let us take the French sentence

Les petites filles vont à l'école.

Because of the relationship between unit, structure, class and system "a given item can be at one and at the same time an exponent of a unit, a structure, an element of structure, a class and a term in a system" (p. 68). Thus, for the example above:

The item filles is

1) at the clause level, the element S of the primary structure SPC.
2) at the group level, it is the head of the nominal group les petites filles.
3) at the word level, it belongs to the class of nouns.

The item école is

1) at the clause level, the element C of the primary structure SPC.
2) at the group level, it is the head of the nominal group à l'école.
3) at the word level, it belongs to the class of nouns.

The item vont is

1) at the clause level, the element P of the primary structure SPC.
2) at the group level, it is the predicator of the verbal group.
3) at the word level, it belongs to the class of verbs.

The items les and l' are

1) at the group level, the element M (modifier) of primary structures of the two nominal groups les petites filles and à l'école.

2) at the word level, they belong to the sub-class of determiners.

The item *petites* is

1) at the group level, the element M (modifier) of the primary structure of the nominal group *les petites filles*.
2) at the word level, it belongs to the sub-class of adjectives.

Secondary structures will then account for the following distinctions:

1) The distinction between the two modifiers *les* and *petites* in the primary structure of the nominal group *les petites filles*.
2) A more narrowly defined C from amongst all the possible C's in primary class structure (e.g., direct object/indirect object). The exponent of this secondary structure is the preposition *à*.

Next, the systems of gender and number will determine concord between all the elements in the primary structure of the nominal group *les petites filles*. The system of number will also determine concord between the elements S and P in the primary structure of the clause *les petites filles vont*.

Finally, further secondary classes can be posited to account for finer differentiations such as definite/indefinite for the sub-class of determiners, thus categorizing *les* and *l'* in the example above as 'definite'. In the case of the verb *vont* mood and tense (in this case 'indicative, present') will be similarly specified.

The equivalent Hebrew sentence:

ha-yeladot	*ha-ktanot*	*holxot*	*le-veyt ha-sefer.*
les filles	*(les) petites*	*vont*	*à l'école.*
the girls	(the) little	go	to school.

can be similarly described. It will be noticed that the fact that the adjective follows the noun in Hebrew affects the description of the primary structure at the group level (when compared to the corresponding French sentence), whilst the fact that the definite article ha- is a discontinuous morpheme in Hebrew, appearing in front of both the noun and the adjective, affects the description of secondary structures. Furthermore, the system of gender must determine concord not only between the elements in the primary structure of the nominal group ha-yeladot ha-ktanot, but also between the elements S and P in the primary structure of the clause ha-yeladot ha-ktanot holxot. Finally, the description of the nominal group of the primary structure C le-veyt ha-sefer will also differ from the description of the corresponding French primary structure à l'école since in Hebrew the equivalent for school is a compound noun (literally 'the book-house') with the definite article ha- placed between the two parts of the compound noun.

The description of the French and Hebrew sentences above illustrates how grammars of different languages can be accounted for in terms of Halliday's model. Halliday himself, however, notes that as more intricate grammatical relationships have to be described, names for the description of these structures may have to be borrowed or created. For the sake of consistency in terminology the following grammars will therefore be used in the present study: Grammaire Larousse du français contemporain (Chevalier et al., 1977) and Contemporary Hebrew (Rosen, 1977).

The Psycholinguistic Model

Grammars provide a theoretical model of how language is organized. However, such a model does not account for linguistic performance and in particular for the process of language acquisition. In order to explain linguistic performance, a psycholinguistic model is needed. According to current theories of developmental psycholinguistics (Brown, 1973; Slobin, 1973) the process of L1 acquisition requires the active participation of the young child who, in accordance with his cognitive abilities, discovers the rules of his language by continuously testing new hypotheses and discarding older ones, thus proceeding through a number of interim grammars each of which approximates more closely the adult system.

With regard to L2 learning, it has been noted above that most recent L2 studies (Bongard, 1976; Dulay & Burt, 1973, 1974 a & b; Hamayan, 1978) have viewed L2 learning as a mentalistic process similar to L1 acquisition. Dulay and Burt (1974a) point out that whilst the two processes may be similar in many ways, L2 learning cannot be equated to L1 acquisition. On the grammatical level the L2 learner brings his L1 experience to the learning situation, a factory which can both promote and hinder the development of L2 (Meriǒ, 1978). On the semantic level the L2 learner has at his disposal a set of previously acquired concepts, such as concepts of time, possession, etc., which frequently determine sequences in L1 development (Brown, 1973). The effects that these differences will have on the L2 learning process must be accounted for in a psycholinguistic model.

Another major difference between L1 acquisition and L2 learning lies in the fact that whilst L1 is a seemingly automatic process, the learning of L2 demands a great deal of effort on the part of the learner (Painchaud-Leblanc, 1978). In consequence, the attainment of proficiency in the L2, contrary to that in L1, differs greatly from learner to learner. Stern (1975) distinguishes between good and poor language learners and suggests that there are specific strategies which certain L2 learners use to improve their competence. A model which incorporates such strategies is proposed by Bialystok (1978).

Bialystok's model is organized on three levels: input, knowledge and output. The input level refers to the entire range of contexts through which the learner is exposed to the target language. The knowledge level refers to the organization of the input for further use. Three types of knowledge are identified: (1) explicit knowledge, i.e., the learner's conscious knowledge about the target language; (2) implicit knowledge, i.e., the intuitive knowledge the learner uses in the language task; (3) other knowledge, i.e., all other information the learner uses in the language task such as L1 experience and culture related experience. The output level refers to the learner's responses both in terms of comprehension and production. Two types of responses are identified: type I response which is spontaneous and immediate and type II response which is deliberate and occurs after a certain, though possibly minimal, delay.

The three levels are connected to one another through obligatory processes and optional strategies. The processes are unidirectional and proceed from the input level through to the output level. Processes operate without the conscious intervention of the learner. The strategies refer to "conscious enterprises" which the learner undertakes in order to improve his proficiency in the L2. The strategies are multidirectional and consequently allow for corrections at the response level. It is the presence of these strategies that differentiates Bialystok's model from an L1 acquisition model where the process of language learning is hypothesized to be largely automatic. The addition of optional strategies in Bialystok's model also allows to account for differences in L2 proficiency based on differences in learner characteristics and on different learning situations.

To summarize, two frameworks for the analysis of linguistic performance have been described here. The first is a theoretical model of how language is organized. The basic concept of this model is that language is organized according to a system of choices, each choice being governed by a set of conditions under which the choice is available. This model provides the frame of reference in accordance to which a corpus of linguistic data can be analyzed. The psycholinguistic model is concerned with how the learner internalizes and uses linguistic knowledge. It, therefore, provides a possible explanation for the difference that is noted between the learner's actual verbal performance and the expected performance as postulated in the theoretical model.

Issues

Goals of the Study

The present study comprises two parts. The first deals with the development of French as a second language; the second deals with the development of Hebrew as a second language.

The purpose of the study is:

1. To compare the development of French as a second language in two different types of immersion programs: one an early one-language immersion program, hereafter referred to as FF (full French immersion) and the other a double or two-language immersion program, hereafter referred to as FH (French-Hebrew immersion). The comparison will be made at three different grade levels, grades 1, 2 and 3. These early grades were chosen because the teaching of the mother tongue is either totally absent or minimal in these grades.
2. To investigate the development of French as a second language at three successive grade levels (grades 1, 2 and 3) within each of the two programs.
3. To investigate the development of Hebrew as a second language at the three successive grade levels (grades 1, 2 and 3) in the FH program. The term 'second' rather than 'third' language is used since French and Hebrew are started simultaneously and since approximately equal instructional time is devoted to the two languages in the program.
4. To investigate whether similar learning strategies are used when languages as diverse as French and Hebrew are learned and to see whether these strategies parallel certain L1 acquisition strategies such as Slobin's (1973) proposed operating principles.

The proposed tool for the assessment of the L2 development will consist of:

1. A quantitative analysis of specific grammatical units produced in the second language. Both correct and incorrect forms of the units under consideration will be examined.
2. A qualitative analysis aimed at assessing linguistic development in terms of learner strategies.

Following Halliday's grammatical framework, the present study will concern itself primarily with certain categories of class and structure. Two primary classes (pronouns and verbs) and three sub-classes (determiners, adjectives and prepositions) will be examined.

Lexical errors in verbs and adjectives will not be considered since they would require a separate linguistic analysis (Halliday, 1976).

The analysis will include syntactic and morphological structures though, following Halliday's model, no division between these two aspects of grammar will be maintained.

A final point has to be made to clarify the terms that will be used in formulating the actual questions to which this study will address itself. Firstly, following Andersen (1978) and Dulay and Burt (1973, 1974 a & b), all obligatory contexts for a particular form will be counted even though the children may not always furnish the required form. These obligatory contexts will constitute the children's quantitative performance. It should be noted that an increase in the number of obligatory contexts is tantamount to an increase in the amount of verbalization produced by a speaker since, even if the speaker does not provide the required form, the provision of the context itself requires additional verbalization. Secondly, since the number of obligatory contexts can vary from speaker to speaker, the total number of errors, i.e., the instances of substitution, omission and intrusion will be calculated with reference to the total number of obligatory contexts of that form and will be expressed as a percentage. The percentages of errors will constitute the children's qualitative performance.

The Questions

1. Is the number of obligatory contexts provided in French within each of the five classes under consideration (pronoun, verb, determiner, adjective and preposition) the same in both the FF program and the FH program at each of the three grade levels (grades 1, 2 and 3)?

2. Is the number of obligatory contexts provided in French within each of the five classes under consideration the same at the three grade levels (grades 1, 2 and 3) in both the FF program and the FH program?

3. Is the number of obligatory contexts provided in Hebrew within each of the five classes under consideration the same at the three grade levels (grades 1, 2 and 3) in the FH program?

4. Is the percentage of errors produced in French within each of the five classes under consideration the same in both the FF program and the FH program at each of the three grade levels (grades 1, 2 and 3)?

5. Is the percentage of errors produced in French within each of the five classes under consideration the same at the three grade levels (grades 1, 2 and 3) in both the FF program and the FH program?

6. Is the percentage of errors produced in Hebrew within each of the five classes under consideration the same at the three grade levels (grades 1, 2 and 3) in the FH program?

7. Which of Slobin's first language operating principles find confirmation in the learning of both French and Hebrew as second languages?

The following chapter will describe how the answers to these questions were obtained.

CHAPTER III

METHODOLOGY

In the present chapter five basic aspects of the research will be described:

1. The subjects.
2. The tests.
3. The procedure for administering the tests.
4. The analysis of the data.
5. The statistical treatment of the data.

The Subjects

The children selected for this study came from two different types of immersion programs: one was an early one-language French immersion program (FF) and the other was an early two-language French-Hebrew immersion program (FH). In each program, children were selected at three different grade levels (grades 1, 2 and 3). All the children in the FF program were selected from the same school. However, in order to control a possible teacher effect on the children's L2 speech patterns, the children were selected from two different classes at each grade level. Because parallel classes at the different grade levels were not available in any of the FH immersion schools, the children in the FH program were selected from two different schools both having similar French-Hebrew immersion programs. Since amount of exposure to the L2, curriculum and teaching techniques can affect L2 performance, the programs in the three schools will be briefly described below.

The two major differences between the school with the FF program and the schools with the FH program were: (1) the time of instruction via the medium of French; and (2) the instruction via the medium of Hebrew which was restricted to the schools with the FH program. The school with the FF program had 25 weekly hours of instruction time. In grades 1 and 2 all of this time was allotted to French except for an hour and a half weekly for gymnastics and library which were given in English. English language arts were introduced in grade 3 leaving only 15 hours of instruction in French at that grade level. Books and workbooks were those used in francophone schools with the addition of some materials prepared especially for immersion classes by the Protestant School Board of Greater Montreal. Reading was introduced through the syllabic method using the series Heureux départ (Jughon & Milot, 1967). Few formal L2 teaching techniques were used although certain grammatical structures were frequently reinforced through games, dramatizations and other devices improvised by the teachers. Errors in the children's French speech patterns were corrected during French language arts lessons, but were generally not corrected during other subject lessons so as not to inhibit the children in their attempts to express themselves in the L2. All but one of the teachers in the six classes from which the children were selected were native French speakers. About half of them were native Quebeckers, the others came from various other French speaking countries.

The two schools with the FH program followed basically the same French curriculum as the school with the FF program. Reading and writing were introduced in grade 1. One of the schools used the series Je veux lire etc. (Bussières, 1967) which introduces reading through the global method. These books are also used in francophone schools. The other school used the same method and books as the school with the FF program. Here too, approximately half of the teachers were francophone Quebeckers. The others came from other French speaking countries.

The Hebrew curriculum was devoted to the study of the Hebrew language, as well as to religious and culturally related subjects such as Bible and Jewish history. All these subjects were taught in Hebrew. The emphasis, especially in grades 1 and 2, was on the use of Hebrew as a means of communication and, as in French, there was little formal Hebrew L2 instruction. Books and workbooks were either those used by native Hebrew speaking children in Israel, or especially prepared materials used in intensive Hebrew L2 programs (ulpanim) in Israel. Reading and writing were started in grade 1. A combination of syllabic and global reading methods was used. Bible and prayer reading were introduced in grade 2. All the teachers spoke Hebrew fluently and approximately half of them were native Israelis.

In order to be able to complete both the regular French curriculum and the Hebrew curriculum the two schools with the FH program had each a total of 30 weekly hours of instruction. There were, however, minor differences between the two schools with regard to the time alloted to instruction in French. This was partly due to the fact that one of these schools delayed instruction in L1 (English) until grade 4, whilst the other school, like the school with the FF program, introduced English language arts in grade 3. Gymnastics and library were part of the French curriculum in both schools. The time of instruction in each language for each of the three schools is summarized in Table 1.

The children in the three schools came from middle to upper middle socio-economic class backgrounds and lived in predominantly English speaking neighborhoods (Statistics Canada, 1974).

Selection of the subject was based primarily on each child's mother tongue. The influence of outside factors on the children's L2 (French and Hebrew) proficiency was controlled by including only children who were native English speakers in the testing. Children who spoke another language, aside from English, with either parent were also excluded. Because of this restriction, a large number of children in the FH program had to be excluded from the study. Very weak students and children with emotional problems were also excluded. The final selection brought the number of children at each grade level in the two schools with the FH program down to 10 children per class or a total of 20 children at each grade level for the FH program. An equal number of children was selected at each grade level in the FF program. Here again, 10 children per class, or a total of 20 children, were randomly selected at each grade level among those who spoke no language other than English with their parents and who were judged

Table 1

Number of Weekly Hours of Classroom Instruction in English, French and Hebrew

	FF		FH_1			FH_2		
	Eng.	Fr.	Eng.	Fr.	Heb.	Eng.	Fr.	Heb.
Grade 1:	1½	23½	0	17	13	0	15	15
Grade 2:	1½	23½	0	15	15	0	17	13
Grade 3:	10	15	4	13	13	0	17	13

by their teachers to be "average" in scholastic achievement and in French proficiency. Some children had to be eliminated after testing because they either did not complete the tests or were found to have had opportunities outside the school for learning the language. The actual number of children included in the group was thus reduced to 19 at each grade level.

To assess the equivalence of the groups, the children were administered the Coloured Progressive Matrices test (Raven, 1965). This test, whilst not giving a direct measure of IQ, is designed to: "assess as accurately as possible a person's present clarity of observation and level of intellectual development" (p. 10). It is particularly suitable for testing young children since it does not involve reading skills. The results of the test were subjected to a two way analysis of variance using class and grade as independent variables. The test scores and the results of the analysis of variance are shown in Table 2.

It should be noted that the Coloured Progressive Matrices test is constructed according to increasing levels of difficulty so as to reflect intellectual development of children 5 - 11 years of age. A statistically significant difference between the grades, as shown in Table 2, is therefore to be expected. On the other hand, there was no significant difference among the classes, indicating that at each grade level the four classes FF_1, FF_2, FH_1 and FH_2 could be regrouped into two major groups, FF and FH respectively, resulting in a total of six distinct groups. The results of the Progressive Coloured Matrices test also show that there is no evidence that differences in the linguistic performance of the two groups (FF and FH) at each grade level were due to basic differences in mental capacity.

Although sex was not considered as a variable in this study, it is of interest to note that in five of the six groups, there were slightly more girls than boys. The distribution according to sex is, however, almost even between the two programs, as shown in Table 3.

Table 2

Summary of Coloured Progressive Matrices Test Scores (1)

	Grade 1	Grade 2	Grade 3
FF_1 (2)	25.00	28.11	32.40
FF_2	26.33	29.67	29.56
FH_1	28.78	31.25	31.30
FH_2	27.13	28.33	29.56

F ratios: Class 1.77; Grade 9.02*; Class x Grade 1.06

*$p < .05$

(1) Maximum score = 36.

(2) FF_1, FF_2, and FH_1, FH_2 indicate two different classes in FF and FH.

Table 3

Number of Boys and Girls According to Grade and Program

	Grade 1		Grade 2		Grade 3	
	boys	girls	boys	girls	boys	girls
FF:	8	11	9	10	9	10
FH:	8	11	10	9	9	10
FH (Hebr.):	8	10	9	9	8	10

Test Description

Since the purpose of this study was to examine the children's oral production in L2 (and L3), an instrument had to be devised that would elicit a sufficient number of occurrences of the grammatical features related to all the primary classes and sub-classes that were to be examined.

Various techniques for testing oral production have been discussed above (chapter I, part 3). The two techniques used in the present study were: (1) a short interview; and (2) a picture-based test (see Appendix A).

The oral interview was used to elicit expressions related to age. Three questions were asked. The first question required the child to tell his age. The question was worded so as not to give the unit that was to be elicited away. The second question asked whether the child had any brothers and sisters. The third question asked to give the siblings' age. If the child answered the first or the third question with a one word answer, he was asked to repeat his answer in a full sentence, e.g.,

Tester:

Dis-moi ton âge.	'Tell me your age.'

Child:

Sept.	'Seven.'

Tester:

Fais une phrase.	'Make a sentence.'

This procedure was adopted in order to elicit the entire idiomatic expression. Only responses which consisted of complete sentences were analyzed for this particular feature.

The picture-based test consisted of nine sets of 2 - 5 pictures each. The pictures were constructed so as to elicit all the grammatical features that were to be examined and which were not elicited by the oral interview. Each set of pictures was constructed to form a small story so that the communicative aspect of oral production would be maintained. The pictures were drawn by a non-professional free-lance artist. In order to induce the children to use adjectives, two pencils of different lengths and two pieces of paper of different colours were used in addition to the pictures.

The same tests were administered at the three grade levels so that it would be possible to measure more accurately changes in the linguistic performance of children in different grades. Furthermore, the same pictures and questions were used in both languages so that the development of certain grammatical features in French and Hebrew could be compared.

Since the purpose of the test was to examine grammatical features, the narration of the stories involved only very basic vocabulary and grade 1 teachers of all three schools indicated that the children were familiar with the lexical items involved.

To ensure that the tests effectively elicited the expected responses, the French tests were first administered to a group of 18 native French speakers in Montreal (hereafter the francophone children) and the Hebrew tests were administered to a group of 20 native Hebrew speakers in Israel (hereafter the Israeli children). Both groups were tested at the grade 1 level. Because the speech patterns of native speakers are of interest to L2 learning processes, the results obtained from these tests will be discussed along with the results of the oral production of the L2 learners.

Procedure for Administering the Tests

The children were tested individually by two bilingual testers, one of whom was the researcher of this study. Each test (oral interview and pictures) lasted approximately 15 minutes. The entire session was tape recorded. The picture-based test was administered first, the objects were used next and the interview took place last. Set I and set IX of the pictures were introduced by narrating part of the story and asking the child to complete the story. This was done in order to situate the stories in the past. In the other sets, the child was asked to tell what he saw in the pictures or to point out differences between two pictures or two objects. The child was never corrected or provided with the lexical items he lacked to complete a statement. Additional questions and expressions urging the child to continue his narration were frequently interjected, especially when the grammatical feature that was to be elicited had not been obtained. All questions were, however, worded so as not to use the particular unit that was to be elicited. All the tests were administered in late spring. In the schools with the FH program, the French version of the test was administered first and the Hebrew version was administered three weeks later in order to avoid confusion between the two languages.

Method of Analysis

The tapes were transcribed by native speakers of each language. Since the study did not examine linguistic performance on the phonological level, the transcriptions were done using conventional French and Hebrew orthography. In some cases, when the particular form did not exist in the language, a phonetic transcription based on the International Phonetic Alphabet (I.P.A.) was used. In such cases the transcriptions were enclosed between two slashes, e.g., */mɛte/. Samples of transcribed interviews in French and in Hebrew are presented in Appendix B.

In the Hebrew transcriptions the Hebrew alphabet was used, though for technical reasons, examples cited in the present and in subsequent chapters of this study will be written according to a system of "transcriptional equivalents that apply between Latin characters and unpointed (unvocalized) script in Israeli Hebrew forms" (Rosen, 1977:13). In addition to the 23 (+ š) Latin characters used, the system contains the sign (') referred to as "onset" (Rosen, 1965:3) which represents the glottal stop א and the uvular fricative ע when either of them constitute the first letter of a word or of a syllable, e.g., ha-po'el 'the worker'.

For the linguistic analysis the two primary classes (pronouns and verbs) and the three sub-classes (determiners, adjectives and prepositions) that were to be examined were, except in the case of French prepositions, subdivided into more narrowly defined secondary classes. A total of 17 secondary classes for French and 20 secondary classes for Hebrew were examined. For reasons of simplification, the two primary classes (pronouns and verbs) and the three sub-classes (determiners, adjectives and prepositions) will henceforth be referred to as major classes. A detailed description of the various major and secondary classes is given below for both French and Hebrew.

French

As already noted, the Grammaire Larousse du français contemporain (Chevalier et al., 1977) was used for terminology and language norms pertaining to the 5 major and 17 secondary classes which form the basis of the present classification. Throughout the study, English equivalents will be used whenever terms are readily available, e.g., 'definite article'. In a few specific cases, the original French term will be used, e.g., passé composé.

Pronouns

Pronouns are grammatical elements used to take the place of nouns or noun phrases. Several types of pronouns can be distinguished (personal, impersonal, possessive, demonstrative, etc.). In the present study, only personal pronouns were examined.

Personal pronouns can be classified according to their function in the sentence. They can be subjects, direct objects and indirect objects.

A characteristic of French pronouns is that they are either conjunctive, in which case they belong to the verbal group, e.g.,

Paul la regarde.	'Paul sees her.'
Je mange une pomme.	'I eat an apple.'
Regarde-moi!	'Look at me!'

or disjunctive, in which case they are not considered part of the verbal group and are separated from the verb by a pause or by a preposition (Chevalier et al., 1977), e.g.,

Paul s'est caché derrière moi.	'Paul hid behind me.'
Toi, tu ne comprends rien.	'You don't understand anything.'

French pronouns are marked for person (first, second, third) and number (singular, plural). In oral expression the third person plural of subject pronouns is not marked for number, unless the following word starts with a vowel, e.g.,

ils vont/il vɔ̃/	'they go'
ils aiment/il zɛm/	'they love'

The third person singular and plural of subject pronouns and the third person singular of direct object pronouns are also marked for gender:

il, elle	'he, she'
ils, elles	'they'
le, la	'him, her'

If the direct object pronoun is followed by a word starting with a vowel, the direct object pronoun is not marked for gender, e.g.,

Je l'aperçois.	'I see him/her.'

Subject pronouns in the third plural are masculine if the referents are of different genders, e.g.,

Le garçon et la fille chantent.	'The boy and the girl sing.'
Ils chantent.	'They sing.'

Pronouns such as the reflexive forms se and soi and the adverbial pronouns en and y are classified by Chevalier et al. (1977) as special cases of personal pronouns.

In the present study the following secondary classes of pronouns were examined:

Third person masculine subject pronouns
Third person feminine subject pronouns
Object pronouns
Reflexive pronouns.

Subject pronouns included only pronouns with a human referent, so that the gender of the pronoun was semantically based. Both singular (il, elle) and plural (ils, elles) pronouns were included. Object pronouns included all the direct and indirect object pronouns (me, moi, te, toi, le, la l', lui, nous, vous, les, leur, eux). The pronoun en in its function of substitute of an undetermined noun phrase (Lampach, 1965) was also classified as an object pronoun, e.g.,

Ce petit garçon a une ceinture 'This little boy has a belt
et l'autre n'en a pas. and the other one doesn't.'

Reflexive pronouns included pronouns in the first, second and third person singular and plural occurring either in front of the verb, e.g.,

Il se lève. 'He gets up.'

or in post-position, e.g.,

Assieds-toi. 'Sit down.'

Errors included:

1. Errors in gender in the subject pronouns, e.g.,
   *Il parle.
   (Elle parle.) 'She speaks.'
2. Errors in form. i.e., errors in case, person, gender and number in the object pronouns, e.g.,
   *Il la parle.
   (Il lui parle.) 'He talks to her.'
3. Errors in word ordering, i.e., errors in the position of the object pronoun in relation to other elements in the sentence, e.g.,
   *Marie regarde le.
   (Marie le regarde.) 'Marie looks at him.'
4. Omission, i.e., the absence of a pronoun in an obligatory context, e.g.,
   *Un chien a mordu.
   (Un chien m'a mordu.) 'A dog bit me.'
5. Intrusion, i.e., the use of a pronoun in a context where it is not required, e.g.,
   *Les pompiers s'arrêtent le feu.
   (Les pompiers arrêtent le feu.) 'The firemen stop the fire.'

Verbs

The verb is the most variable element in grammatical form. It is considered the most basic element of the clause or sentence structure since, in certain cases, it may constitute a complete sentence, e.g., Ecoute! 'Listen!' (Lampach, 1965).

The particular form that a verb will take is related to mood, tense, person and number and, in some cases, gender. All these features are characterized by inflectional suffixes.

Mood expresses the attitude of the speaker towards the action expressed by the verb. In French, there are five moods: the indicative, the imperative, the subjunctive, the infinitive and the participle. The conditional is considered by Chevalier et al. (1977) as a tense of the indicative. Chevalier et al. also note that the moods are only classification labels and that the modal value of a verb depends on the context in which the verb is used. In the present study, the indicative mood and the infinitive mood were examined. The participle mood was only considered as part of a compound tense and was therefore not classified separately.

The tense situates the action in one of three basic temporal dimensions: past, present, future. The indicative mood has ten tenses of which five are simple tenses, i.e., they are formed by adding inflectional suffixes to the verb stem; and five are compound tenses, i.e., they are formed by using an auxiliary verb and a past participle. Apart from the regular compound tenses, there are compound forms which consist of a semi-auxiliary and an infinitive, e.g.,

Il doit partir.	'He must leave.'

Chevalier et al. (1977) note that these constructions do not form part of the conjugation proper.

Chevalier et al. also classify under verbs certain special constructions referred to as locutions verbales. In the present study, these will be referred to as idiomatic expressions. They consist of:

a verb and a noun:

Il a faim.	'He is hungry.'

a verb and an adjective:

Il fait beau.	'It is nice (weather).'

Traditionally, verbs are classified according to three conjugations based on the ending of the infinitive (chanter, finir, rendre 'to sing, to finish, to give back'). There are, however, many exceptions and only the first conjugation can be called regular. In spoken French, the first, second and third person singular of verbs in all three conjugations are not marked for person. The third person plural of verbs in the first conjugation is also not marked for person. Hence, in the first conjugation these four forms are phonetically ambiguous, e.g.,

je parle/parl/	'I talk'
tu parles/parl/	'you talk'
il parle/parl/	'he talks'
ils parlent/parl/	'they talk'

In the present study the following secondary classes of verbs were examined:

Third person singular present indicative
Third person plural present indicative
Passé composé
Infinitive, present
Idiomatic expressions.

Included in the present tense were all occurrences of the verb *avoir* 'to have', when this verb was not used as an auxiliary, as part of an idiomatic expression, or as part of the *présentative* *il y a* 'there is', and all occurrences of the verb *être* 'to be', when this verb was not used as an auxiliary. In the present tense plural both phonetically ambiguous (see above) and phonetically non-ambiguous forms, e.g., *ils finissent* 'they finish' were included. It should be noted that the tests mainly elicited non-ambiguous forms.

Included in the *passé composé* were all persons singular and plural. Furthermore, it included verbs conjugated with the auxiliary *avoir* and verbs conjugated with the auxiliary *être*.

Reflexive verbs were counted as regular verbs since, aside from the reflexive pronoun which was analyzed separately, these verbs are conjugated as regular verbs using the auxiliary *être* in the *passé composé*.

The idiomatic expressions included the first and third person singular and the third person plural. Included in the idiomatic expressions were expressions relating to a person's age. e.g.,

J'ai sept ans. 'I am seven years old.'

This was done because, in the above expression as well as in the idiomatic expressions related to feelings, e.g., *avoir peur* 'to be afraid', the verb *avoir* 'to have' which must be used in these expressions contrasts sharply with the verb 'to be' which is used in the corresponding English expressions.

Errors included:

1. Errors in the inflectional suffix of the present tense of the indicative mood, e.g.,
   *Elle sortir de la cuisine.
   (Elle sort de la cuisine.) 'She goes out of the kitchen.'
2. Errors in the form of present tense of the infinitive mood, e.g.,
   *Il va/prəne/le chien.
   (Il va prendre le chien.) 'He goes to take the dog.'
3. Confusion of *avoir* and *être* both as regular verbs in the present tense of the indicative mood and in the idiomatic expressions, e.g.,
   *Le chandail a déchiré.
   (Le chandail est déchiré.) 'The sweater is torn.'
   *Le petit garçon est froid.
   (Le petit garçon a froid.) 'The little boy is cold.'
4. Errors in the *passé composé* which were further subdivided according to:

a) Errors in the auxiliary:
   (1) Omission of the auxiliary, e.g.,
      *Il tombé.
      (Il est tombé.) 'He fell.'
   (2) Confusion between *avoir* and *être*, e.g.,
      *Elle a sorti de la cuisine.
      (Elle est sortie de la cuisine.) 'She went out of the kitchen.'

Errors in person and/or number of the auxiliary were not included in the count since they do not relate specifically to the correct use of the auxiliary.

b) Errors in the form of the past participle, e.g.,

*Elle a/prəne/le gâteau.
(Elle a pris le gâteau.) 'She took the cake.'

c) Errors in choice of tense, i.e., when a tense other than a *passé composé* was used in a context where the *passé composé* was obligatory, e.g.,

*Le petit garçon raconte
qu'un chien le mord.
(Le petit garçon raconte qu'un chien l'a mordu.) 'The little boy tells that a dog bit him.'

Determiners

Chevalier et al. (1977) distinguish between two types of determiners in French: (1) those that cannot combine amongst themselves such as articles, possessive adjectives, etc.; and (2) those that can be used in conjunction with the first group of determiners such as quantifying numerals. In the present study only determiners of the first type were examined. Within this group, the study examined the subclass of articles. According to Chevalier et al., the article is the fundamental tool for determining the noun class. In spoken French the article is often the only indicator of gender and number. Because of these particular features of the French article three of the secondary classes of the article that will be examined in this study will be related to gender and number. The French article can also undergo changes in form within certain contexts, as described below. These forms will constitute the other three secondary classes of the article that will be examined. The subdivision of articles into definite, indefinite and partitive articles will not be used as a base for classification because such a division is much debated (Tanase, 1972) and, furthermore, it seems of limited importance to this study.

Gender. In French the noun is characterized by gender. There are two secondary classes of gender: the masculine and the feminine. In most cases there exists a relationship between gender class membership and sex, e.g., *le garçon*/*la fille* 'the boy/the girl', but for inanimate referents gender is arbitrary. Although certain phonetic noun endings can serve as cues of gender (Tucker, Lambert & Rigault, 1977), mastering the gender of French nouns is extremely difficult for L2 learners (Rigault, 1971).

The gender of the noun affects the form of the entire noun phrase and is expressed by the agreement of the determiner and other modifiers with the noun.

Number. Number also affects the entire noun phrase in French. The notion of number is based on the opposition of singular and plural. Chevalier et al. (1977) note that the basic difference between gender and number is that gender is specific to the noun whereas number is determined by the context. It should be noted that there is no gender distinction in the plural form of the article, e.g.,

le crayon/les crayons	'the pencil/the pencils'
la chaise/les chaises	'the chair/the chairs'

The elided form "l'". In front of a noun (or another part of the noun phrase) starting with a vowel sound, the definite articles le and la change to l'. Here again, there is no gender distinction in the form of the article, e.g.,

l'oiseau (masc.)	'the bird'
l'horloge (fem.)	'the clock'

Contracted forms. The prepositions à and de combine with the masculine singular definite article le and the plural definite article les to form the following contracted forms: au, aux, du, des; e.g.,

La dame parle au pompier.	'The lady talks to the fireman.'
La queue du chien est longue.	'The dog's tail is long.'

The reduced form "de". This term is used by Chevalier et al. (1977) with reference to the following two contexts:

1. The articles *le*, *la*, *les* are dropped from the forms *du*, *de la*, *des* after certain adverbs of quantity, e.g.,

beaucoup de gens 'many people'

2. The articles *un*, *une*, *du*, *de la*, *des* are changed to *de* in front of the direct object of verbs in negative constructions, e.g.,

Elle n'a pas de manteau. 'She has no coat.'

If the noun following the reduced form *de* starts with a vowel sound, the *de* is changed to *d'*, e.g.,

beaucoup d'enfants 'many children'

In the present study the following secondary classes of articles were examined:

Masculine singular articles
Feminine singular articles
Plural articles
The elided form *l'*
Contracted forms
The reduced form *de*.

Masculine, feminine and plural articles included all occurrences of definite, indefinite and partitive articles in usual form. The elided and contracted forms included those occurrences of the definite and partitive articles which undergo changes in form as described above. The reduced form *de* which is derived from either the partitive or the indefinite articles was classified as a separate class because its use is restricted to particular contexts.

Errors included:

1. Errors in gender, e.g.,

*le maman
(la maman) 'the mother'

2. Errors in number, e.g.,

*le livres
(les livres) 'the books'

3. Omission of the article in an obligatory context, e.g.,

*les lapins et oiseaux
(les lapins et les oiseaux) 'the rabbits and the birds'

4. Doubling of the article, e.g.,

*le l'arbre
(l'arbre) 'the tree'

5. Failure to use the elided, contracted or reduced forms of the article, e.g.,

*le arbre
(l'arbre) 'the tree'

In the case of the contracted forms, the form was only counted wrong if the child used the correct article, e.g.,

*à le garçon
(au garçon) 'to the boy'

If the child, however, said: **à la garçon*, the error was classified as a gender error since the form *à la* by itself is correct.

In the case of the reduced form *de*, all instances of failure to produce the correct form were counted as errors, e.g.,

*Il n'a pas un livre.
(Il n'a pas de livre.) 'He hasn't got a book.'
*Il a beaucoup des livres.
(Il a beaucoup de livres.) 'He has many books.'

Adjectives

This class refers to those lexical items which can express a certain quality related to the noun (Chevalier et al., 1977). Adjectives agree in gender and in number with the noun to which they relate. If a single adjective refers to several nouns, it takes the plural form. Furthermore, the masculine gender is dominant, i.e., if the nouns are of different genders, the adjective takes the masculine form, e.g.,

Le manteau et la robe sont verts. 'The coat and the dress are green.'

In the present study the following secondary classes of adjectives were examined:

Masculine adjectives
Feminine adjectives.

Since in oral expression adjectives are mostly not marked for number, only gender was considered relevant in the present study and each of the above secondary classes included, therefore, singular and plural instances of the adjective.

Errors included:

1. Errors in gender, e.g.,

*le petite garçon	
(le petit garçon)	'the little boy'

Because of the extreme variability noted in the L2 speech patterns of individual speakers (Andersen, 1978), and because of the process of neutralization which may influence the choice of an adjectival form (Setton, 1974), it was decided to classify errors of gender in the adjective independently of errors of gender in the article, thus in:

*le petit fille	
(la petite fille)	'the little girl'

the article _*le_ and the adjective _*petit_ were counted as two separate errors since the adjectival form _petit_ may have been chosen because it is the uninflected form rather than because it agrees with the article _le_.

2. Errors in form when that form is not related to gender, e.g.,

*La porte est /uvre/.	
(La porte est ouverte.)	'The door is open.'

3. Errors in word ordering, i.e., errors in the position of the adjective in relation to the noun, e.g.,

*des bleus yeux	
(des yeux bleus)	'blue eyes'
*une fleur belle	
(une belle fleur)	"a beautiful flower'

Prepositions

According to Chevalier et al. (1977) prepositions can be broadly classified into two subclasses: (1) those that carry semantic content independently of the structure in which they appear, e.g., _sur_, _après_, _avec_; and (2) those whose content is determined by the structure in which they appear, e.g., _à_, _de_, _par_. In the latter case, the same preposition can have different functions, e.g.,

Il va à Paris.	'He goes to Paris.'
Il apprend à nager.	'He learns to swim.'

Furthermore, the same semantic content can be expressed by different prepositions, e.g.,

Elle va à Montréal.	'She goes to Montreal.'
Elle va en France.	'She goes to France.'

Chevalier et al. (1977) note that prepositions are "une catégorie difficile à délimiter" (p. 394). Gougenheim (1962) classifies prepositions according to oppositions such as *à*/*de*, *au*, *en*/*dans le*, *de*/*pour*, etc. and notes: "Naturellement, vu le nombre des prépositions, nous ne saurions étudier toutes les oppositions possibles" (p. 277). Aside from the inherent complexity of the French prepositional system, there is for the L2 learner the added confusion of the contrastive aspects of the prepositional systems in L1 and L2 (Lococo, 1975; 1976; Painchaud-Leblanc, 1978), e.g.,

Il pense à ses amis.	'He thinks of his friends.'
Que pensez-vous de vos amis?	'What do you think of your friends?'

Because of the difficulty in establishing clearly definable subclasses, it was decided not to subdivide the class of prepositions in the present study.

Errors included:

1. Substitution errors, i.e., the use of a wrong preposition, e.g.,

*Elle téléphone pour la police.	
(Elle téléphone à la police.)	'She calls the police.'

2. Omission, i.e., the absence of a preposition in an obligatory context, e.g.,

*Elle demande le monsieur si...	
(Elle demande au monsieur si...)	'She asks the gentleman if...'

3. Intrusion, i.e., the use of a preposition in a context where it is not required, e.g.,

*Les écureuils cherchent pour des noix.	
(Les écureuils cherchent des noix.)	'The squirrels are looking for nuts.'

Hebrew

In Hebrew (as in French) the five major classes that were examined were pronouns, verbs, determiners, adjectives and prepositions. Secondary classes differed, however, in certain cases because of differences in the structures of the two languages. As mentioned above, the text Contemporary Hebrew (Rosen, 1977) was used as a frame of reference for the 20 secondary classes which are under consideration in the present study. The term "Contemporary Hebrew" refers, according to Rosen, to both spoken and written Israeli Hebrew, though he acknowledges certain stylistic differences between the two. Nir (1977) argues that the Hebrew taught outside Israel is mostly geared towards prayer and bible study, and hence is classical Hebrew. He stresses, however, that the trend is towards a greater emphasis on modern Israeli Hebrew. It should be noted that Nir refers to a large variety of Hebrew schools, many of which are afternoon or Sunday schools. With reference to the Jewish day schools, Morag (1978) notes that the Hebrew taught in those schools today is actually modern Israeli Hebrew. Morag argues that it is precisely for that reason that the term "Contemporary Hebrew" is more appropriate than the term "Modern Israeli Hebrew", since it avoids the geographical restriction of the latter term. As for the differences between spoken and written Hebrew, Rosen (1977) notes that these stylistic differences are similar to those found in other languages and hence they do not justify the classification of spoken Hebrew as a separate linguistic entity. In the present study, such differences will be pointed out wherever relevant.

Pronouns

As in French, only personal pronouns were examined in the present study. In Hebrew personal pronouns are classified primarily as independent and dependent pronouns (Rosen, 1966). Independent pronouns are separate lexical items and are in the nominative case (subject), e.g., *'ani*, *'ata*, *hu*, 'I, you, he'. Dependent pronouns are not separate lexical items, but are bound morphemes which combine with prepositions. Dependent pronouns are always in a case other than the nominative case, e.g.,

'ani ro'a 'otxa.	'I see you.'
ha-mora notenet lo sefer	'The teacher gives him a book.'
yosef yošev 'axaray.	'Joseph sits behind me.'

Dependent pronouns in the dative case are also used in two specific sentence structures referred to as possessive and attributive constructions.

Possessive constructions are a particular type of sentence structure where the possessed object is in the nominative case whilst the possessor is in the dative case, e.g.,

yeš li (ha-)sfarim.	'I have (the) books.'
'eyn li (ha-)sfarim.	'I don't have (the) books.'

The position of the possessed object within these sentences has given rise to stylistic variations in spoken Hebrew whereby the possessed object is losing its properties of a grammatical subject and is being reanalyzed as a direct object (Ziv, 1976).

Attributive constructions are sentence structures containing a subject pronoun and an adjective or a noun phrase as predicate, e.g.,

hi r'eva.	'She is hungry.'

Certain attributive constructions contain predicative adjectives followed by a pronoun in the dative case, e.g.,

kar lo	'He is cold.'
noax li.	'I am comfortable.'

Rosen (1977) notes a marked parallelism between these constructions and the corresponding German forms: *Es ist mir kalt*. *Es ist mir bequem*.

Hebrew personal pronouns (independent and dependent) are marked for person (first, second, third), and number (singular, plural). The second and third person are also marked for gender (masculine, feminine). The second and third person masculine plural forms are used if the referents are of different genders. This latter rule is similar to that governing the plural form of certain French pronouns such as the third person plural subject pronouns.

In the present study the following secondary classes of Hebrew pronouns were examined:

The third person masculine singular subject pronoun
The third person feminine singular subject pronoun
Third person plural subject pronouns
Object pronouns
Pronouns in possessive and attributive constructions.

Because in Hebrew the third person singular and the third person plural subject pronouns are phonetically distinct lexical items the latter were classified as a separate class. This secondary class was, however, not further subdivided into masculine and feminine plural pronouns because of the small number of contexts in which these pronouns could be produced in the tests. Object pronouns included all pronouns in the accusative case and in the dative case, except for dative pronouns in the possessive and attributive constructions which were described above. The latter two classes were grouped together because both contrast with the equivalent English and French structures where the pronoun is in the nominative case.

Errors included:

1. Errors in gender in the subject pronouns, e.g.,

   *hu kama.
   (hi kama.) 'She gets up.'

2. Errors in number in the subject pronouns, e.g.,

   *hu kor'im.
   (hem kor'im.) 'They read.'

3. Errors in form, i.e., errors in case, person, gender and number in the object pronouns, e.g.,

   *hi notenet lexa me'il.
   (hi notenet lo me'il.) 'She gives him a coat.'

4. Errors in word order, i.e., errors in the position of the pronoun in relation to other elements in the sentence, e.g.,

   *'ani lexa 'omer
   ('ani 'omer lexa.) 'I tell you.'

5. Omission, i.e., the absence of a pronoun in obligatory context, e.g.,

   *ha-yalda ra'ata 'et
   ha-'uga ve-'axla.

   (ha-yalda ra'ata 'et ha-'uga ve-'axla 'ota.) 'The girl saw the cake and ate it.'

Verbs

The Hebrew verb consists of a mainly tri-consonantal root (šores) and a stem pattern (*binyan*). There are seven *binyanim* *pa'al*, *nif'al*, *pi'el*, *pu'al*, *hif'il*, *huf'al*, *hitpa'el*) and most roots can be conjugated according to several of these *binyanim*. All *binyanim* are inflected for person, gender (in the case of certain persons), number, tense and certain aspects of mood. Voice is expressed by the *binyan* itself as examplified in the different forms obtained from the tri-consonantal root /k/-/t/-/v/:

pa'al	*nif'al*	*hif'il*	*huf'al*	*hitpa'el*
katav	nixtav	hixtiv	huxtav	hitkatev
'(he) wrote'	'was written'	'(he) dictated'	'was dictated'	'(he) corresponded'

It should be noted that the alternation of /k/ and /x/ is conditioned by certain phonological environments. Similar alternations occur between /b/ and /v/ and between /p/ and /f/.

There are also several other patterns derived from the *binyanim* such as the *pa'ul* which is a stative form of transitive verbs in *pa'al*, e.g., *katuv* 'written'.

Traditionally each *binyan* was attributed a number of fixed semantic functions, e.g., *hitpa'el* was seen as reflexive and reciprocal (Kautzsch, 1813/1910). Modern linguists, however, argue that the theory of fixed semantic relations between the various *binyanim* cannot be fully justified (Ornan, 1971). According to Rosen (1977), the description of the verbal inflections must be carried out without reference to the root/*binyan* distinction. This position has been followed in the present study.

Mood and tense. In Hebrew conjugation paradigms are not organized according to mood since mood is expressed inflectionally only in the imperative which is itself receding and, in certain cases, tends to be replaced in spoken Hebrew by the future (Peretz, 1975). It should be noted that the use of the future is in fact obligatory in the negative construction of the imperative, e.g.,

lex!	'Go!'
'al telex!	'Don't go!'

Uninflected verb forms such as the infinitive are classified by Rosen (1977) as invariant forms.

There are three basic tenses in Hebrew: present, past and future which express relations of time as well as certain aspects of modality. In the latter case, the semantically void copula haya 'was' is added to the verb, e.g.,

moše medaber.	'Moshe talks.'
moše haya medaber.	'Moshe would talk/was talking.'

The three basic tenses are simple tenses. The present and the past tenses can express both completed and continuous actions. In Hebrew, the function of the present tense is broader than in English and in French. It is frequently referred to as beynoni or 'aorist' (Rosen, 1977), i.e., an indefinite tense between past and future. The beynoni describes a continuous action which can designate a person who either performs the action or is in the state described by the verb, e.g.,

hu menahel.	'He (is) a manager/ he manages.'

This type of structure was traditionally referred to as a nominal clause (Blau, 1958).

Person, gender, number. Verbs in the three basic tenses are inflected. In the present tense, the verb is inflected for gender and number, but not for person, e.g.,

'ani 'oxel.	'I eat.'(masc.)
'ani 'oxelet.	'I eat.'(fem.)
hi 'oxelet.	'She eats.'

In the plural, the masculine form is used when the subjects are of different genders, e.g.,

ha-yeladim holxim.	'The boys are walking.'
ha-yeladot holxot.	'The girls are walking.'
ha-yeladim ve-ha-yeladot holxim.	'The boys and girls are walking.'

It should be noted that the plural markers /im/ and /ot/ are the same inflectional suffixes as the plural markers for nouns. This characteristic further associates the present tense with the nominal group.

In the past and future tenses, the verb is inflected for person and number. The second person (singular and plural) and the third person singular are also inflected for gender, e.g.,

'ata ta'amod.	'You will stand.' (masc.)
'at ta'amdi.	'You will stand.' (fem.)
hu 'amad.	'He stood.'
hi 'amda.	'She stood.'

In future, the third person plural is also inflected for gender. This form is, however, not used in spoken Hebrew.

In the past and future tenses, the first and second person do not require the use of a personal subject pronoun. In spoken Hebrew, the pronoun is, however, frequently added, e.g.,

('ani) macati 'et ha-sefer.	'I found the book.'

The infinitive. The infinitive, in Hebrew, is an uninflected form which, contrary to French, is not marked for tense. If past or future is to be expressed, a noun or a subordinate clause is used, e.g., the French structure *après voir mangé* 'after having eaten' can be expressed as:

'axarey ha-'oxel	'after the food'
'axarey še-hu 'axal	'after he ate/had eaten'

As in French and English, the infinitive can be used in different ways, e.g.,

moše roce le'exol.	'Moshe wants to eat.'
'ima mevakešet mi-moše le'exol.	'Mother asks Moshe to eat.'
ha-ba'aya hi limco 'et ha-kesef.	'The problem is to find the money.'

The infinitive can also be used in Hebrew as an imperative (as is the case for written French), e.g.,

lisgor 'et ha-delet bevakaša.	'(To) close the door please!'

The form of the infinitive corresponds to that of the third person masculine singular future tense with one change: the inflectional prefix *y* is replaced by the prepositional prefix *l* , e.g.,

hu yixtov	'he will write'
lixtov	'to write'

The two passive *binyanim* *pu'al* and *huf'al* have no infinitive forms.

The impersonals. Impersonals refer to those uninflected verb forms which usually center around an infinitive (Rosen, 1977).

mutar lištot.	'It is permitted to drink.'
'i-'efšar la'avor.	'It is impossible to pass.'

Impersonals can be marked for tense by adding the auxiliary *haya* 'was' (in future *yihye*).

A particular case of impersonals are the invariant forms *yeš* and *'eyn* equivalent to the French *présentative* *il y a* and its negative form *il n'y a pas*, e.g.,

yeš sefer 'al ha-šulxan.	'There is a book on the table.'
'eyn sefer 'al ha-šulxan.	'There isn't a book on the table.'

Here the other tenses are formed not by addition of the auxiliaries *haya* and *yihye*, but by substituting these same forms for the impersonals *yeš* and *'eyn*, preceded in the latter case by the negative particle *lo*, e.g.,

haya sefer 'al ha-šulxan.	'There was a book on the table.'
lo haya sefer 'al ha-šulxan.	'There wasn't a book on the table.'

These past and future forms are, however, inflected for gender and number, e.g.,

haya makom.	'There was place.'
hayu mkomot.	'There were places.'

Rosen attributes a special status (verboids) to these forms when they appear in a possessive construction noting that here these forms take on the meaning of 'to have'.

The copula haya can also function as a regularly inflected tri-consonantal verb form equivalent to the uses of 'to be' as a main verb (Berman & Grosu, 1976), e.g.,

'eyfo hayita?	'Where were you?'
matai david yihye ba-bayt?	'When will David be home?'

In this case the verb has no overt form in the present tense, e.g.,

david ba-bayt.	'David is home.'

In the present study the following secondary classes of verbs were examined:

Third person masculine singular present tense
Third person feminine singular present tense
Third person plural present tense
Third person masculine singular past tense
Third person feminine singular past tense
Third person plural past tense
Infinitive forms
Impersonals.

Because of the small number of contexts in which plural verbs could be produced in the tests both masculine and feminine forms were included in the third person plural of the present tense. All instances of the copula haya were included in the past tense since this form is always marked for gender and number when used either as a main verb or as the past form yeš and 'eyn. In the impersonals only the invariant forms of yeš and 'eyn were examined.

Errors included:

1. Errors in gender, e.g.,

*hi holex.	
(hi holexet).	'She goes.'

2. Errors in number, e.g.,

*hem roce 'oxe̍l.	
(hem rocim 'oxe̍l.)	'They want food.'

3. Errors in form. In order to account for verb forms which differ from the correct form on a grammatical feature other than gender and number another secondary class was added in the error analysis. Included in this class were errors in choice of tense, mood and stem pattern, e.g.,

*mi 'oxel 'et ha-'uga?	
(mi 'axal 'et ha-'uga?)	'Who ate the cake?'
*ha-yeled kum ba-boker.	
(ha-yeled kam ba-boker.)	'The boy got up in the morning.'
*ha-yeladim saxak ba-šeleg.	
(ha-yeladim sixaku ba-šeleg.)	'The children played in the snow.'

In order to avoid cross-classification, errors in form prevailed over errors in gender and number, i.e., when a verb was in the wrong form errors in gender or number were not counted for that form; thus, in the third example above *ha-yeladim saxak ba-šeleg the error in number (indicated by the absence of the inflectional suffix /u/ was not counted. In order to see whether errors in form occurred more frequently in either of the two tenses examined, errors in form were listed separately for each tense. Errors in form in the infinitive and in the impersonals were listed in their respective classes.

Determiners

In Hebrew determination is expressed by the definite article ha "which forms a binary opposition with Ø" (Rosen, 1977; 155), e.g.,

ha-'iš	'the man'
'iš	'a man'

This definite article is a bound morpheme which is invariable with regard to gender and number. The latter are indicated by inflectional suffixes to the noun, e.g.,

ha-yeled	'the boy'
ha-yalda	'the girl'
ha-yeladim	'the boys/the children'
ha-yeladot	'the girls'

In Hebrew the definite article occurs not only before the noun, but also before certain sub-classes of the noun phrase such as the demonstrative noun marker and the adjective which agree in gender and in number with the noun to which they relate, e.g.,

ha-bayt ha-ze	'this house'
ha-bayt ha-gadol	'the big house'

It is of interest to note that because in contemporary Hebrew the copula haya has no overt form in the present tense, omission of the definite article in front of the adjective results in an attributive construction, e.g.,

ha-yeled ha-katan	'the little boy'
ha-yeled katan.	'The boy (is) little.'

In Hebrew noun compounding (smixut) is a special construction in which the head element (nismax, 'supported') directly precedes the modifying adjunct (somex, 'supporter'). In these compounds, the definite article ha is usually prefixed to the adjunct, e.g.,

'eglat ha-yeladim	'the baby carriage'

This rule applies even when the members of the compound have lost their specific meaning. Rosen notes that these compounds are often characterized by one word equivalents in other languages, e.g.,

beyt ha-sefer	'the school'
beyt ha-xolim	'the hospital'

Contracted forms. When the noun phrase contains one of the prepositions be, le, ke, 'in, to, as' which are bound morphemes, the definite article combines with these prepositions to form the following contracted forms:

be + ha = ba
le + ha = la
ke + ha = ka

When these forms are used, the distinction between determined and non-determined noun phrases is reduced to a change in the vowel of the preposition unless other sub-classes of the noun phrase that can be marked for determination are present, e.g.,

be-misrad	'in an office'
ba-misrad	'in the office'
ba-misrad ha-ze	'in this office'

In the present study the following secondary classes of articles were examined:

Full form of the definite article
Contracted forms of the definite article.

Full forms of the definite article included all the occurrences of the definite article in front of the noun and in front of those sub-classes of the noun phrase where the use of the article is obligatory, except for contracted forms. It also included the occurrence of the definite article in a compound nominal even when the latter was preceded by a bound-morpheme preposition, since prepositions do not affect the form of the definite article in the compound nominal, e.g.,

be-veyt ha-sefer	'in the school'

Errors included:

1. Omission of the article in front of any element of the noun phrase, e.g.,

*ha-yeled ze	
(ha-yeled ha-ze)	'this boy'

2. Omission of the article in the contracted form, e.g.,

*ha-yalda be-xeder.	
(ha-yalda ba-xeder.)	'The girl is in the room.'

3. Failure to use the contracted form, e.g.,

*hi notenet 'oxél le-ha-ciporim.	
(hi notenet 'oxél la-ciporim.)	'She gives food to the birds.'

Adjectives

There are two groups of adjectives in Hebrew: primary and derived. Primary adjectives are old participle forms of certain qualitative verbs, e.g., naki 'clean' or passive participles of stative verbs, e.g., sagur 'closed'. Derived adjectives are mostly constructed from nouns, e.g., xofši 'free' or from an uninflected verb form (impersonals), e.g., 'efšari 'possible'.

Gender. The Hebrew noun is characterized for gender. As in French, there are two secondary classes derived from gender: the masculine and the feminine. Except for the relationship between gender class membership and sex, gender is also arbitrary in Hebrew, though the feminine is in most cases indicated by specific noun endings.

As noted above, the gender of the noun affects certain subclasses of the noun phrase such as adjectives, as well as certain verb paradigms. Masculine and feminine forms of the adjective (and of the verb) are phonetically distinct in Hebrew, e.g.,

me'il yafe	'a pretty coat'
simla yafa	'a pretty dress'

Number. Number (singular/plural) affects the same classes as gender. In contrast to French, number is always phonetically marked in Hebrew, e.g.,

me'ilim yafim	'pretty coats'
smalot yafot	'pretty dresses'

If a single adjective refers to several nouns, it takes the plural. Furthermore, as in French, the masculine gender is dominant, e.g.,

ha-me'il ve-ha-simla yafim.	'The coat and the dress are pretty.'

In the present study the following secondary classes of adjectives were examined:

Masculine singular adjectives
Feminine singular adjectives.

As in French, only those adjectives which can express a quality were examined.

Errors included:

1. Errors in gender, e.g.,

*ha-delet sagur.
(ha-delet sgura.)   'The door is closed.'

As in French, errors in the gender of the adjective were classified independently of errors in other gender classes which require agreement with the same noun, thus in:

*ha-'iša ha-šamen
'oxel harbe.
(ha-'iša ha-šmena   'The fat woman eats a lot.'
'oxelet harbe.)

the adjective *šamen and the verb *'oxel were counted as two separate errors since both forms may have been chosen because they are the uninflected forms rather than because they agree in gender.

2. Errors in form when that form is not related to gender, e.g.,

*ha-xalon soger.
(ha-xalon sagur.)   'The window is closed.'

3. Errors in word ordering, i.e., errors in the position of the adjective in relation to the noun, e.g.,

*lavan gir
(gir lavan)   'white chalk'

Prepositions

Hebrew prepositions are either free or bound morphemes:

free morpheme prepositions		bound morpheme prepositions	
lifne	'before'	be-	'in/at'
'axare	'after/behind'	le-	'to/for'
'ad	'till'	mi-	'from/of'

According to Rosen (1977), Hebrew prepositions function in two discrete ways:

1) They have only a grammatical function, i.e., they serve as case markers and as such cannot be replaced by another preposition, e.g.,

ha-yeled hištameš be-milon.   'The boy used a dictionary.'

2) They function as "lexical units", i.e., they carry semantic content and can be replaced by other prepositions without altering the grammatical structure of the sentence, e.g.,

ha-yeled higiya be-ša'a šmone.	'The boy arrived at eight o'clock.'
ha-yeled higiya lifne ša'a šmone.	'The boy arrived before eight o'clock.'

Whilst a dual function for certain prepositions is not restricted to Hebrew, the extent to which Hebrew prepositions function as case markers is much debated (Levenston, 1970), Rosen's argument for the label "case marker" is based on the fact that there is in Hebrew one preposition which functions only as a case marker. This is the preposition 'et which functions as a marker of the accusative case when the latter is a determined noun, i.e., preceded by the article ha, e.g.,

hi ra'ata 'et ha-seret.	'She saw the movie.'

When the noun in the accusative case is not preceded by the article ha, the preposition 'et has no overt marker, e.g.,

hi ra'ata seret.	'She saw a movie.'

Another charateristic of Hebrew prepositions is that they combine with inflectional suffixes when a pronoun is used in a case other than the nominative case, e.g.,

'et + i = 'oti	'me' (accusative)
lifne + i = lefanay	'in front of me'

When these forms involve a bound morpheme preposition or the accusative marker 'et, they are considered as pronouns and have been classified as such in the present study.

The particular use of the preposition 'le + pronoun' in possessive and in certain attributive constructions has been discussed above. When a noun is used instead of the pronoun in these constructions, the preposition le precedes the noun as a dative case marker, e.g.,

le-yosef yeš kadur	'Joseph has a ball.'
le-sara kar.	'Sara is cold.'

In the present study the following secondary classes of prepositions were examined:

General prepositions

The preposition *'et*

The preposition *le* in possessive and attributive constructions.

General prepositions included all prepositions other than those in the other two secondary classes. The preposition *'et* was classified separately because of its unique function as a case marker. The possessive and attributive constructions were grouped together in order to parallel the corresponding secondary class of pronouns.

Errors included:

1. Substitution errors, i.e., the use of a wrong preposition, e.g.,

    *ha-yeladot holxot be-beyt
    ha-sefer.
    (ha-yeladot holxot le-veyt
    ha-sefer.) 'The girls go to school.'

The alternation of /b/ and /v/ in cases like *le-beyt ha-sefer* is frequently not observed in spoken Hebrew and was therefore not counted as an error.

2. Omission, i.e., the absence of a preposition in an obligatory context, e.g.,

    *hu mexapes ha-sefer
    (hu mexapes 'et-ha-sefer.) 'He is looking for the book.'

3. Intrusion, i.e., the use of a preposition in a context where it is not required, e.g.,

    *hu sam 'et ha-me'il 'al.
    (hu sam 'et ha-me'il.) 'He puts the coat on.'

Problems of Classification

Certain problems arose with regard to the classification of the units examined in both French and Hebrew. Firstly, the children's speech contained many false starts, repetitions (sometimes with self-correction) and incomplete responses. False starts were eliminated. When repetitions occurred, only the last version was retained. Incomplete responses were analyzed if the primary class to which they belonged was fully expressed, e.g., in:

*Elle a téléphoné le... le...	'She called the...the...'

elle and *a téléphoné* were classified as pronoun and verb respectively, the determiner *le* was, however, eliminated since the primary class to which it belongs was incomplete. It should be noted that responses which were independently incomplete, but which were acceptable within the context of the test, were analyzed, e.g.,

Tester: Est-ce que tu as des frères et des soeurs?	'Do you have brothers and sisters?'
Child: Un frère.	'A brother.'

Secondly, in some cases, arbitrary decisions had to be taken as to how a given unit should be classified. Thus, the unit **ils/vəne/* could be either in the present: *ils viennent* 'they come', or in the past: *ils sont venus* 'they came'. In such cases, the tense was determined by the context, i.e., the tense used in the preceding and/or in the following sentence. In some cases, tense was determined by the tester's question, e.g., in the Hebrew sentence:

*ha-yeled ha-ze haya harbe kesef ve-ha-yeled ha-ze 'eyn harbe kesef.	'This boy had much money and this boy doesn't have much money.'

it is the first verb *haya* 'had' which is incorrect since the question:

be-ma-šone ha-yeled ha-ze me-ha-yeled ha-hu?	'In what is this boy different from that boy?'

was in the present tense.

Thirdly, since the study deals only with grammatical features, lexical errors were not considered. In those cases where the lexical item could not be grammatically classified, e.g., if it was in either L1 or L3, it was eliminated.

Statistical Treatment of Data

Three levels of statistical comparisons were used: (1) a comparison of the obligatory contexts; (2) a comparison of the percentages of errors; (3) a comparison of the hierarchies of grammatical difficulty.

Comparison of Obligatory Contexts

For each child, all the obligatory contexts in each secondary grammatical class were counted on condition that there was a minimum of two such contexts (Hamayan, 1978). The numbers of obligatory contexts of those secondary classes belonging to the same major class were then summed. Next, the mean number of obligatory contexts in each secondary class and in each major class in French was computed for each program (FF and FH) at each grade level (grades 1, 2 and 3) and the mean number of obligatory contexts in Hebrew was computed for the FH program at each grade level (grades 1, 2 and 3). Since the mean thus obtained is an arithmetic mean for the group, that mean will be lower than two in those cases where very few, or none, of the children provided any obligatory contexts in a given grammatical class.

Two statistical procedures were used to determine the level of significance of the differences between grades and between programs.

a) For each secondary class and for each major class, a one-way analysis of variance was used to determine: (1) whether the means in French in each program differed significantly from one another at the three grade levels; (2) whether the means in Hebrew in the FH program differed significantly from one another at the three grade levels. Where significant differences were found, a Newman-Keuls test was used to determine between which grades the significant difference lay.

b) For each secondary class and for each major class, a *t* test was used to determine whether at each grade level the mean obtained in French for the FF program differed significantly from that obtained for the FH program. The computer program used for these analyses is described in the *Statistical Package for the Social Sciences* (Nie et al., 1975).

Comparison of Percentages of Errors

For each child, the errors produced in each secondary class were counted. The total number of errors in each secondary class was then compiled according to program (FF, FH) and to grade (grades 1, 2 and 3) for French, and according to grade in the FH program for Hebrew. For each of these groupings (six in the case of French and three in the case of Hebrew) the total number of errors in each secondary class was divided, to two decimal places, by the respective number of obligatory contexts in that class, yielding an error ratio for each secondary class. Error ratios were, however, not calculated if the mean number of obligatory contexts in a secondary class was less than one. The error ratio for each major class was obtained by dividing, to two decimal places, the total number of errors of the secondary classes belonging to the same major class by the respective number of obligatory contexts for that major class. All error ratios were multiplied by 100 and expressed as percentages.

For each secondary class and for each major class, a X^2 test was used to determine: (1) whether the percentages of errors in French in each program differed significantly from one another at the three grade levels; (2) whether the percentages of errors in Hebrew in the FH program differed significantly from one another at the three grade levels. Where significant differences were found, an extension of the Scheffé test (Marascuilo, 1971) was used to determine which pairs of grades were significantly different.

Similarly, a X^2 test was used to determine whether the percentages of errors in French in the two programs differed significantly from one another at each of the three grade levels. All the X^2 test results were obtained from the raw scores of the data, i.e., from the comparison of the correct and incorrect instances in each secondary class and in each major class.

The tables. The results for each major class and for each secondary class are summarized in a table subdivided into A and B sections. Section A shows the mean number of obligatory contexts provided in each program (FF, FH for French and FH for

Hebrew) at each of the three grade levels (grades 1, 2 and 3). Section B shows the percentage of errors produced in each program at each of the three grade levels. In each section, the level of probability (p) pertaining to the significance of the difference among the three grades in each program is indicated in the vertical column near the right side of the table. Furthermore, the level of probability (p) pertaining to the significance of the difference between the two programs at each grade level is indicated in the horizontal row near the bottom of each section. A difference among grades or between programs will be considered statistically significant if $p < .05$. Where a significant difference exists among grades of the same program means in section A, as well as percentages in section B, are joined by a broken line. In reading the tables, one must bear in mind the following two issues pertaining to the analysis. Firstly, the means in section A of each table are the arithmetic means for each group. Secondly, the percentages in section B of each table represent the total number of errors as a proportion of the total number of obligatory contexts produced by each group.

Comparison of Hierarchies of Grammatical Difficulty

After the percentages of errors in each secondary class and in each major class in French were calculated, the classes were ranked for each program (FF, FH) at the three grade levels (grades 1, 2 and 3) according to an order of increasing percentages of errors, thus establishing a hierarchy of grammatical difficulty for each of the six groups. Major classes which presented only summations of the corresponding secondary classes were not included in the rank orders. Similarly, rank orders were established in grades 2 and 3 of the FH program for all the classes in Hebrew, excluding those classes which presented only summations of the corresponding secondary classes. No rank order was established in Hebrew for grade 1 because of insufficient data.

Rank order correlations were calculated using two statistical procedures.

a) Spearman's rho was used to calculate: (1) the correlation between the French rank orders of the two programs (FF, FH) at each grade level; (2) the correlation between the Hebrew rank orders in grades 2 and 3 of the FH program.

b) Kendall's coefficient of concordance W (Ferguson, 1976) was used to calculate the correlation among the French rank orders in grades 1, 2 and 3 of each program.

To summarize, this chapter has described how the data which served as the basis of the present study was obtained and analyzed. In the following two chapters the results of the analyses of the French and Hebrew tests will be presented and discussed.

CHAPTER IV

PRESENTATION AND DISCUSSION OF FRENCH TEST RESULTS

In this chapter the results of the analysis of the French tests obtained according to the procedures outlined in the preceding chapter are presented and discussed. The results are presented according to major and secondary classes. The results of the major class are presented first, followed by the results of every secondary class belonging that major class. The order of presentation will follow the order used in the discussion of the grammatical classes in the previous chapter, i.e., (1) pronoun, (2) verb, (3) article, (4) adjective, (5) preposition.

For each major class and for each secondary class, two different aspects of linguistic development are presented and discussed. The first aspect pertains to the children's quantitative performance in French and is measured by the number of obligatory contexts in each class. The second aspect pertains to the children's qualitative performance and is measured by the proportion of errors produced in relation to the total number of obligatory contexts in each class.

For each major class and for each secondary class, the results will be informally compared to those of the francophone children. It should be noted that in analyzing the tests of the francophone children, little variation was found among the children in either the number of obligatory contexts or the percentage of errors. Furthermore, the percentage of errors was less than 10% in all, but one class, consequently it was decided to limit the analysis to data provided by only half the group, namely five boys and four girls. A summary of these results is presented in Appendix C.

Pronouns

In the major class of pronouns the pattern of development differs in the two programs. In the FF program the mean number of obligatory contexts increases from grade 1 to grade 3, but this increase is not significant, whereas in the FH program the increase is such that all three means differ significantly from one another (Table 4A). The comparison between the two programs shows that the children in the FH program provided fewer contexts in which the use of a pronoun was obligatory than the children in the FF program at all three grade levels. In grades 1 and 2 this difference between the programs is significant. Furthermore, the number of obligatory contexts provided by the children in both programs is markedly lower than that produced by the francophone children ($\bar{X} = 52.78$). This disparity in the number of obligatory contexts provided by the immersion students and that produced by the francophone children may indicate a reluctance on the part of the L2 learners to use pronouns because of the linguistic complexity involved in pronominalization (Ross, 1967). Data from L1 acquisition in French seem to suggest that the avoidance of pronominalization is not restricted to L2 learning. Lazure (1976) notes that at age 5 approximately one third of the francophone children he studied failed to pronominalize consistently.

The distribution of the percentages of errors also differs in the two programs. In the FF program the proportion of errors decreases from grade 1 to grade 3 and the percentage in grade 3 is significantly lower than those in grades 1 and 2 (Table 4B). In the FH program there is no significant change in the proportion of errors across the three grades. The comparison between the two programs shows that in grade 3 the children in the FH program produced a significantly higher percentage of errors than the children in the FF program. The finding that the proportion of errors decreases significantly only in grade 3 of the FF program suggests that both cumulative time and intensity of program seem to influence mastery of the pronoun. It should be noted that even in that grade the performance of the immersion students differs markedly from that of the francophone children (3% errors). The question arises as to how the errors are distributed across the different secondary classes of the pronoun.

Table 4

Pronouns

Mean Number of Obligatory Contexts and Percentage of
Errors According to Grade and Program

Table 4A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	35.53	37.37	38.68	.551
FH	17.32	24.37	37.73	.000
p (programs)	.000	.000	.755	

Table 4B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	31	30	16	.000
FH	29	25	26	.432
p (programs)	.485	.109	.000	

Third Person Masculine Subject Pronouns

In the FF program the mean number of obligatory contexts for the third person masculine subject pronouns does not differ significantly among the three grades. In the FH program there is a significant increase in the number of these contexts from grade 1 to grade 2, but not from grade 2 to grade 3 (Table 5A). The comparison between the two programs shows that the children in the FH program produced fewer masculine subject pronoun contexts than the children in the FF program at all three grade levels. In grades 1 and 2 this difference between the programs is significant. Furthermore, the number of such contexts produced by each of the six groups is lower than that provided by the francophone children ($\bar{X} = 27.92$).

The comparison of the percentage of errors in each program shows that in the FF program there is a significant decrease from grade 2 to grade 3, whereas in the FH program the decrease is not significant among the three grades (Table 5B). Moreover, the grade 3 children in the FF program performed as well as the francophone children (1% errors). The most striking finding pertaining to the error counts in this class is the low percentage of errors produced by all six groups. It should be noted that, as described in chapter III, these percentages were obtained by dividing the total number of errors by the total number of obligatory contexts produced by each group in this secondary class. Following Brown (1973), L2 researchers (Dulay & Burt, 1974a; Tarone, Frauenfelder and Selinker, 1976) have suggested that a percentage of errors of 10% or less in obligatory contexts (hereafter referred to as the 10% threshold) can be interpreted as mastery of a given grammatical feature. In the case of the masculine subject pronouns, the proportions of errors for all six groups are below this threshold. Between the two programs, the only significant difference in the percentages of errors is in grade 2 and may be interpreted as resulting from the fact that whilst there is a slight increase in the percentage of errors between grades 1 and 2 in the FF program, there is a decrease between these same grades in the FH Hebrew program. It should

Table 5

Third Person Masculine Subject Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 5A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	21.32	20.05	21.68	.671
FH	10.52	15.63	19.16	.004
p(programs)	.000	.028	.241	

Table 5B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	4	5	1	.006
FH	4	2	2	.227
p (programs)	.874	.025	.830	

however, be noted that all the errors in grade 2 of the FF program were produced by only 15% of the children, one of whom constantly used the feminine form elle instead of the masculine form il. These findings suggest that the increase in percentage of errors observed between grades 1 and 2 in the FF program may be attributable to individual learner differences.

Third Person Feminine Subject Pronouns

The distribution of the number of obligatory contexts for the third person feminine subject pronouns across grades and between programs (Table 6A) follows the pattern observed for the masculine subject pronouns with one major difference, namely that the significant increase in the mean number of these contexts in the FH program lies between grades 2 and 3 and not between grades 1 and 2, as is the case for the masculine pronouns. Furthermore, in grade 3 the number of feminine subject pronoun contexts is approximately the same in both programs. This number is still lower than that provided by the francophone children ($\bar{X} = 11.14$), though the difference is considerably smaller than the difference noted between the immersion students and the francophone children for the masculine pronouns.

The distribution of the percentages of errors (Table 6B) also follows the general pattern observed for the masculine pronouns, i.e., there is a significant decrease in the percentage of errors across the grades in the FF program and no significant decrease across the grades in the FH program. It should be noted that in the FF program the decrease is significant between all three grades and in grade 3 the percentage of errors (13%) is only slightly above the 10% threshold. However, this percentage is still much higher than that of the francophone children (4% errors).

In the above discussion certain similarities in the development of the masculine and feminine subject pronouns in the immersion students' speech patterns have been noted. There are, however, also noticeable differences with regard to both the

Table 6

Third Person Feminine Subject Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

	Grade 1	Grade 2	Grade 3	p (grades)
FF	8.16	8.68	9.37	.559
FH	2.79	4.37	9.47	.000
p (programs)	.000	.001	.922	

Table 6B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	58	41	13	.000
FH	46	43	35	.224
p (programs)	.183	.850	.000	

number of obligatory contexts and the percentages of errors between these two classes. Firstly, the masculine pronoun contexts were produced more than twice as often as the feminine pronoun contexts in both programs and at all three grade levels. These results are consistent with those of the francophone children and were partially caused by the tests which provided more opportunities to refer to male referents than to female ones (as noted in chapter III, only pronouns with human referents were analyzed). Furthermore, both singular and plural pronouns were included in the analysis and since masculine pronouns are used when the referents are of both genders they occur more frequently in the language. Finally, it was noted that masculine plural nouns or combined nouns of both genders were mostly pronominalized if they were in the nominative case, e.g.,

Tester:
Que font les enfants? 'What are the children doing?'
Child:
*Ils /li/. 'They are reading.'

Whilst feminine plural referents were frequently left in the nominal form, e.g.,

Tester:
Que font les petites filles? 'What are the little girls doing?'
Child:
*Les petites filles va à l'école. 'The little girls are going to school.'

Secondly, the percentage of errors is much higher for the feminine pronouns than for the masculine pronouns at all three grade levels; 84% of the errors in the subject pronouns are in the feminine pronouns. Almost all of these errors involve the substitution of the masculine form /il/ for the required feminine form /ɛlle/. Similar results have been found by other researchers (Swain, 1976; Tarone, Frauenfelder & Selinker, 1976). The francophone children also made proportionally more errors in the feminine pronouns than in the masculine pronouns. Here again the children substituted the masculine form /il/ for the feminine form /ɛlle/. The errors produced by the francophone children pertained, however, only to feminine pronouns in plural contexts, whilst the errors produced by the immersion students pertained to feminine pronouns in both singular and plural contexts.

Finally, the finding that the mean number of obligatory contexts for the masculine pronouns produced by the children in the FH program increases significantly after grade 1, whilst the mean number of feminine pronoun contexts increases significantly only after grade 2, seems to support the notion that L2 learners may tend to avoid the use of those grammatical features which they perceive as difficult to master.

Object Pronouns

As in the case of the subject pronouns, there are no significant differences in the mean number of obligatory contexts for object pronouns across the three grades in the FF program (Table 7A). In the FH program the pattern is similar to that of the feminine subject pronoun, i.e., the mean number of obligatory contexts in grade 3 is significantly higher than those in grades 1 and 2. The comparison between the two programs shows that the children in the FH program provided significantly fewer object pronoun contexts than the children in the FF program in grades 1 and 2. Furthermore, the children in both programs produced fewer such contexts than the francophone children ($\bar{X} = 8.00$).

In both programs the percentage of errors produced in grade 3 is significantly lower than those produced in grades 1 and 2 (Table 7B). The comparison between the two programs shows that in grade 3 the percentage of errors in the FF program is significantly lower than that in the FH program, though neither reaches down to the 10% threshold. The results for the francophone children show, here too, a higher percentage of errors (7%) than in the subject pronouns, but the francophone children produced different kinds of errors than the immersion students. The most frequent type of error made by the francophone children was an error of form, e.g.,

*Un chien lui a mordu.
(Un chien l'a mordu.) 'A dog bit him.'

Similar types of errors were noted in the speech of four to five year old native French speakers (Bautier-Castaing, 1977). The persistence of these errors in the speech patterns of

Table 7

Object Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 7A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	3.21	4.74	3.95	.245
FH	1.37	1.79	5.11	.000
p (programs)	.021	.001	.134	

Table 7B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	94	83	35	.000
FH	84	92	59	.000
p (programs)	.325	.332	.003	

francophone children suggests that mastery of the object pronoun seems to present certain intralingual difficulties.

For children in both the FF program and the FH program omission was the most frequent type of error. Similar results have been noted by other researchers (Bongard, 1976; Swain, 1976). When object pronouns were produced, errors in form and place frequently occurred simultaneously. It if of interest to note that errors in place like:

> *La maman a donné lui un manteau.
>
> (La maman lui a donné un manteau.) 'The mother gave him a coat.'

which may be attributed to L1 interference (Tarone, Frauenfelder & Selinker, 1976) have also been noted in the speech of very young francophone children (Lazure, 1976). Hence, the error could be attributed to either of these sources.

A pronoun which the immersion students did not produce at all was the pronoun *en* although they provided obligatory contexts for this form, e.g.,

> *Ce petit garçon a un chapeau et l'autre n'a pas.
>
> (Ce petit garçon a un chapeau et l'autre n'en a pas.) 'This little boy has a hat and the other one doesn't.'

This type of error could be attributed to a strategy of simplification similar to the one which may cause the omission of other object pronouns. On the other hand, the error could be caused by transfer from the corresponding English structure. The finding that this pronoun did not even emerge in grade 3, at a time when the percentage of errors in the object pronouns had already decreased significantly, suggests that L1 interference may play an important role in certain aspects of L2 development.

When the high percentage of errors made by the immersion students is viewed in conjunction with the small number of obligatory contexts for the object pronouns provided in both programs, it seems that strategies of avoidance may be linked to the relative difficulty experienced by the L2 learner in mastering a grammatical feature.

Reflexive Pronouns

In both programs, there is a significant increase in the mean number of obligatory contexts for the reflexive pronouns across the grades, though in the FF program this increase occurs after grade 1, whereas in the FH program it occurs only after grade 2 (Table 8A). Between the two programs the only significant difference in the number of obligatory contexts is in grade 2. Since reflexive pronouns were only elicited in a limited number of instances, a smaller number of obligatory contexts in this class is to be expected, however, the children in both programs provided fewer such contexts than the francophone children ($\bar{X} = 5.69$).

The percentage of errors is relatively high in both programs and at all three grade levels (Table 8B). In the FF program there is a decrease in the proportion of errors from grade 1 to grade 2, followed by an increase from grade 2 to grade 3. Consequently, the overall decrease is not significant. Similarly, the percentage of errors in the FH program does not decrease significantly across the three grades. Between the two programs, there is a significant difference in grade 2. However, these findings have to be interpreted cautiously because of the small number of obligatory contexts.

The somewhat irregular results for the FF program need further examination. Sudden increases in the percentage of errors in pronouns have been noted by other researchers (Swain, 1976) and have been attributed to the overgeneralization of a target language rule. What is more difficult to explain is the decrease in the proportion of errors from grade 1 to grade 2, prior to the increase. Firstly, it should be noted that the percentage of errors in grade 2 remains very high (69%). Secondly, more than three quarters of the errors produced in grades 1 and 2 are omission errors. Closer investigation of the data revealed that in grade 2 all the correct forms of the reflexive pronoun were produced by less than half of the children, two of

Table 8

Reflexive Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 8A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	2.84	3.89	3.68	.015
FH	2.63	2.58	4.00	.000
p (programs)	.441	.002	.496	

Table 8B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	91	69	86	.004
FH	88	88	78	.195
p (programs)	.865	.026	.297	

whom made no errors at all in this class. These findings suggest that some of the children in grades 1 and 2 may have produced the reflexive pronoun in conjunction with certain verbs as a prefabricated pattern (Hakuta, 1974, 1976). This strategy may be more productive in grade 2, where the incorrect use of such patterns was also noted in sentences such as:

*Elle marche devant la porte et va-t-en.	
(Elle marche vers la porte et s'en va.)	'She walks to the door and goes out.'

Thirdly, in grade 3 intrusion errors begin to appear. It would seem that it is only at that point that the reflexive pronoun becomes a distinct grammatical feature for the children. The reflexive pronoun also seems the most difficult secondary class of pronouns for the francophone children (9% errors) although here, as in the case of the object pronouns, most of the errors are errors of form rather than omissions and intrusions.

To summarize, pronominalization seems to be largely avoided by immersion students and, except for the masculine subject pronouns, none of the pronoun forms are mastered by grade 3. The number of pronoun contexts provided in grade 1 is greater in the FF program, but the increase in the number of these contexts is more pronounced in the FH program so that in grade 3 the children in the FH program provided approximately the same number of obligatory contexts as the children in the FF program. At the same time the children in the FF program progressed further towards mastery of the pronoun system than the children in the FH program, except in the case of the reflexive pronoun where the grade 3 children in the FH program may simply have used more prefabricated patterns of 'reflexive pronoun + verb' structures.

Verbs

The verb class is the major class presenting the largest number of obligatory contexts in both programs and at all three grade levels. This is partly due to the nature of the pictures which depicted mainly actions. The other reason for the comparatively large number of verb contexts is the fact that the noun phrase can consist of either a noun (and its sub-classes) or of a pronoun, two major classes which are considered separately in this study, whilst verbs constitute a single major class.

In both programs, the number of obligatory verb contexts increases from grade 1 to grade 3. This increase is most pronounced between grades 2 and 3, hence in both programs the mean number of verb contexts in grade 3 differs significantly from those in grades 1 and 2 (Table 9A). The comparison between the two programs indicates that in grade 1 the children in the FH program produced significantly fewer verb contexts than the children in the FF program. The increase in the mean number of obligatory contexts seems, however, to be more rapid in the FH program, since in grade 3 the children in that program provided significantly more verb contexts than the children in the FF program. Closer examination of the data revealed that the children in grade 3 of the FH program sometimes used lengthly paraphrases when they did not seem to know the appropriate lexical item, e.g.,

FF child:

*Il regarde pour quelque chose à manger.	'He is looking for something to eat.'

FH child:

*Il fait un trou, puis il voit dans le trou s'il y a des 'peanuts' pour manger.	'He makes a hole, then he looks in the hole if there are any peanuts to eat.'

It is of interest to note that the lexical term *regarder pour 'to look for' produced by the child in the FF program is incorrect. Nevertheless, the speaker must have felt confident that he was conveying meaning adequately. This difference between the speech patterns of the children in the FF program and those in the FH program suggests that the children in the FF program may have developed more efficient strategies of communication. Except for the grade 3 children in the FH program, the immersion students in all the groups produced fewer verb contexts than the francophone children ($\bar{X} = 80.11$).

Table 9

Verbs

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 9A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	63.79	66.42	77.89	.001
FH	51.00	59.68	86.79	.000
p (programs)	.002	.170	.023	

Table 9B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	29	27	24	.003
FH	35	32	28	.001
p (programs)	.006	.002	.003	

The percentage of errors also varies significantly across the grades within each program and between the two programs at each grade level (Table 9B). It should, however, be noted that the percentage of errors does not decrease significantly between any two adjacent grades in either program. Furthermore, the children's performance in both programs is markedly different from that of the francophone children (2% errors). In order to analyze this aspect of the results more accurately, a study of the distribution of the errors among the different secondary verb classes follows.

Third Person Singular Present Indicative

The obligatory contexts for the third person singular present indicative (Table 10A) account for more than half of all the verb contexts provided by each group. The distribution of these contexts follows the pattern observed for the major class of verbs, the only difference being that the mean number of verb contexts provided by the grade 3 children in the FH program does not differ significantly from that produced by the grade 3 children in the FF program. The francophone children, similarly, provided more than half of all their verb contexts in the third person present indicative ($\bar{X} = 45.78$). Two related factors contributed to prevalence of present tense verbs, the first pertains to the tests themselves and the second pertains to the children's choice of tense in their responses. As noted in chapter III, only certain sets of pictures elicited a story that was situated in the past. Furthermore, a child was not penalized for using the present tense in describing the corresponding pictures as long as his response was not a direct answer to a question asked in the past tense. Frequently, the children started a story in the past, but switched later to the present tense. Since the present tense is also used by native speakers in narration, such switches were not counted as errors as long as the sequence of events remained logical.

The results reported in Table 10B indicate that, as in the case of the major class of verbs, the percentage of errors varies

Table 10

Third Person Singular Present Indicative

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 10A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	37.16	35.26	42.16	.013
FH	31.84	36.63	47.00	.000
p (programs)	.034	.656	.070	

Table 10B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	8	4	2	.000
FH	14	13	7	.000
p (programs)	.001	.000	.000	

significantly across grades and between programs. The most noteworthy feature of the children's performance is the low percentage of errors produced by all groups. In the FF program the mastery criterion (errors $< 10\%$) is achieved in all three grades; in the FH program this level is reached in grade 3. The francophone children made no errors in this class.

Closer investigation of the kinds of errors produced by the children revealed several types of errors. Firstly, there was confusion between the third person singular of the verb _avoir_ and the _présentative_ _il y a_, e.g.,

> *Il y a un chapeau.
> (Il a un chapeau.) 'He has a hat.'

Secondly, the verb _avoir_ was sometimes substituted for the required verb _être_ when the latter was followed by an adjective derived from a transitive verb, e.g.,

> *La porte a ouvert.
> (La porte est ouverte.) 'The door is open.'

A small number of errors involved the use of another present tense form of the same verb, e.g.,

> *Le garçon /mɛt/ son manteau.
> (Le garçon met son manteau.) 'The boy is putting on his coat.'

or the use of the infinitive form, e.g.,

> *La fille sortir.
> (La fille sort.) 'The girl leaves.'

The incorrect form */mɛt/ was only produced in the FF program and appeared in all three grades. The continuing presence of this error suggests that it may have become a fossilized form for at least part of the students in that program.

Another kind of error in the third person singular present indicative consisted of the use of the corresponding form of the verb _être_ 'to be' plus the stem of the main verb. This error was produced predominantly by the children in the FH program and occurred in contexts where the corresponding English verb would be in the present continuous tense, e.g., *Il est mange.

(Il mange.) 'He (it) is eating.'

The finding that this error was produced more frequently by the children in the FH program suggests that the children in this program may be relying more heavily on their L1 grammar in attempting to communicate about events situated in the present.

Third Person Plural Present Indicative

In the FF program there is no significant difference among the three grades with regard to the mean number of obligatory contexts for the third person plural present indicative. In the FH program the children in grade 3 provided significantly more such contexts than the children in the other two grades; consequently, the mean number of obligatory contexts in grade 3 of the FH program differs significantly from that in grade 3 of the FF program (Table 11A). Furthermore, in grade 3 of the FH program, the mean number of these contexts exceeds slightly that provided by the francophone children ($\bar{X} = 11.78$).

By contrast to the proportion of incorrect forms in the present tense singular verbs, the percentage of errors in the present plural verbs is very high (Table 11B) and although there is a significant decrease across the grades in both programs, the performance of the children in grade 3 is still markedly different from that of the francophone children (5% errors). The comparison between the two programs shows that the children in the FH program made proportionally more errors than the children in the FF program at all three grade levels. In grade 2 the difference is significant.

Most of the errors occurred in verbs other than those of the first conjugation (Table 11C). This is not surprising since verbs of the first conjugation are not marked for the third person plural. It should be noted that approximately two thirds of all the plural verbs produced by each of the groups required a marked third person plural form. Harley and Swain (1977) have suggested that L1 interference may be one of the reasons for the difficulty English-speaking children

Table 11

Third Person Plural Present Indicative

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 11A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	9.58	10.63	10.53	.394
FH	8.21	9.68	12.74	.000
p (programs)	.147	.364	.024	

Table 11B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	70	55	47	.000
FH	71	67	56	.004
p (programs)	.860	.016	.058	

Table 11 (cont'd)

Table 11C Percentage of Errors in the Third Person Plural Present Indicative of Verbs not Belonging to the First Conjugation

	Grade 1	Grade 2	Grade 3	p (grades)
FF	90	81	74	.005
FH	92	86	75	.001
p (programs)	.736	.450	.991	

have in mastering the plural forms of French verbs, since English verbs are not inflected in the present tense, except for the third person singular. The generalization of this interpretation is, however, doubtful since other researchers have found that students learning English as a second language frequently fail to mark the third person singular in spite of the fact that verbs are inflected for person and number in L1 (Scott & Tucker, 1974).

Closer investigation of the data revealed two interesting aspects of development in the learning of the plural forms. Firstly, most of the errors were caused by the substitution of the third person singular present indicative for the corresponding plural form. Only a few children attempted to differentiate between singular and plural forms by using an existing form other than the third person singular form. e.g.,

> *Ils (les pompiers) /mɛte/ l'eau sur la maison.
>
> (Ils mettent l'eau sur la maison.) 'They (the firemen) are putting (spraying) the water on the house.'

This form could be an overgeneralization of the second person plural present indicative vous mettez 'you put' or of the second plural imperative mettez! 'put!', which is probably the most frequently occurring plural form in the children's linguistic input. It should be noted that this form is phonetically ambiguous with the infinitive and with the past participle forms of the first conjugation verbs which constitute the majority of French verbs; so that these forms could also have influenced the learner's hypothesis about the form to be used.

Secondly, verbs with third person plural forms that are completely distinct from the corresponding third person singular form, e.g., a/ont 'has/have', est/sont 'is/are', va/vont 'goes/go', seem to be mastered earlier than verbs in which the third person singular is phonetically the stem of the verb and the third person plural is an inflected form thereof, e.g., finit/finissent 'finishes/finish', boit/boivent 'drinks/drink'. It is of interest to note that most of the errors made by the francophone children consisted of this latter type of verb, suggesting that these verbs may require more time to master.

Passé Composé

According to Harley and Swain (1977), the *passé composé* is the tense most frequently used by immersion students to indicate actions in the past. In the present study, the *passé composé* was the only form of past produced, except for a few occurrences of the verb *être* in the *imparfait*. The mean number of obligatory contexts for the *passé composé* increases significantly across the grades in both programs. The pattern of development is, however, different in the two programs (Table 12A). In the FF program the significant increase in the mean number of obligatory contexts is between grades 1 and 2, whereas in the FH program the significant increase is between grades 2 and 3; consequently, the children in grade 2 of the FF program provided significantly more contexts for the *passé composé* than the children at the same grade level in the FH program. It is of interest to note that the children in grades 2 and 3 of the FF program and the children in grade 3 of the FH program used the *passé composé* more frequently than the francophone children ($\bar{X} = 11.00$). This may be due to the second and third graders' greater cognitive maturity. Immersion students and francophone children frequently switched from the *passé composé* to the present tense, there was, however, a qualitative difference between the two groups in the way this was done, e.g.,

Immers. stud.:		
	*Elle est allée dans le cuisine et /regarde/ le gâteau et... em... puis elle sort.	'She went into the kitchen and saw the cake and... then she goes out.'
Francophone:		
	Elle est entrée dans la cuisine et elle a vu le gâteau et maintenant elle s'en va.	'She went into the kitchen and she saw the cake and now she goes away.'

Thus, while both the immersion student and the francophone child seemed to avoid the *passé composé*, at times, the native speaker situated the corresponding action in the present tense. Furthermore, the contexts in which the francophone children switched from the *passé composé* to the present tense was limited to specific verbs such as *s'en aller* 'to go away' and the *présentative il y a* 'there is/there are'.

The percentages of errors vary slightly across grades and between programs with the children in the FH program producing a higher percentage of errors than the children in the FF program at all three grade levels. None of these differences are, however, significant (Table 12B), a finding which seems to point to some difficulty L2 learners have in mastering the *passé composé*. By comparison, the francophone children made only 7% errors. This percentage is, however, higher than the percentage of errors produced by the francophone children in all the other secondary classes of the verb examined in this study.

The auxiliary. Closer examination of the errors revealed that the auxiliary verb caused the highest percentage of errors in the *passé composé* (Tables 12C, 12D, 12E). Here again, there are no significant differences in the percentages of errors across grades and between programs (Table 12C). Two types of errors were identified: (1) omission of the auxiliary; and (2) confusion between the only two possible auxiliary verbs of the *passé composé*, i.e., *avoir* and *être*.

Omission accounts for 34% of the errors in the auxiliary; substitution of *être* for *avoir* accounts for 16% of the errors in the auxiliary and substitution of *avoir* for *être* accounts for 50% of the errors in the auxiliary. This high percentage of errors in the use of the auxiliary *être* is not surprising since most French verbs are conjugated with the auxiliary *avoir*. The overgeneralization of the auxiliary *avoir* can, therefore, be seen as an attempt by the L2 learner to regularize the conjugation of the *passé composé*. This tendency of overgeneralization has been equally noted for certain verbs in the speech patterns of different groups of French Canadians (Mougeon & Carroll, 1976). It, furthermore, accounts for all the errors in the auxiliary (2%) produced by the francophone children in this study. The analysis also revealed that most of the omission errors occurred in the second verb of a compound sentence, e.g.,

Table 12

Passé Composé

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 12A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	8.53	12.47	13.42	.036
FH	6.21	6.58	14.53	.000
p (programs)	.138	.002	.594	

Table 12B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades
FF	51	55	52	.653
FH	63	59	58	.640
p (programs)	.073	.568	.240	

Table 12 (cont'd)

Table 12 C Percentage of Errors in the Auxiliary Verb of the Passé Composé

	Grade 1	Grade 2	Grade 3	p (grades)
FF	32	42	38	.139
FH	45	40	41	.747
p (programs)	.053	.780	.501	

Table 12D Percentage of Errors in the Past Participle of the Passé Composé

	Grade 1	Grade 2	Grade 3	p (grades)
FF	15	21	17	.309
FH	15	21	13	.122
p (programs)	.897	.930	.227	

Table 12 (cont'd)

Table 12E Percentage of Errors in Choice of Tense

	Grade 1	Grade 2	Grade 3	p (grades)
FF	19	6	10	.000
FH	17	18	19	.846
p (programs)	.756	.001	.005	

*Elle a touché le gâteau et sorti.

(Elle a touché le gâteau et elle est sortie.) 'She touched the cake and went out.'

Such an error could be attributed to L1 interference since in English the second verb in a series does not require an auxiliary in compound tenses (Harley & Swain, 1977). On the other hand, such constructions are sometimes possible in French when both verbs require the same auxiliary, e.g.,

Elle a chanté et crié en même temps. 'She sang and shouted at the same time.'

This particular type of omission error could thus also be attributed to an intralingual source. Further examination of the data showed that omission of the auxiliary in sentences containing a single verb were more frequently produced in the FH program than in the FF program. Since such a construction does not exist in French, this error may be more directly attributable to L1 interference, e.g.,

*Il tombé.

(Il est tombé.) 'He fell.'

Such an interpretation seems to imply that the children in the FH program may rely more frequently on their L1 grammar than the children in the FF program when talking about events in the past.

The past participle. The percentage of errors in the past participle of the passé composé is much lower than that of the auxiliary in both programs at all three grade levels (Table 12D), though it is still markedly higher than that of the francophone children (1% errors). Once again, there are no significant differences across grades and between programs. All of the errors occurred in verbs other than those of the first conjugation. Two types of errors were noted. Firstly, the form of the past participle of verbs in the first conjugation was overgeneralized and applied to the past participle of verbs in other conjugations, e.g., */vəne/ for venu 'came', */prɔne/ for pris 'took', */mɛte/ for mis 'put'. These errors were the most common ones of the past participle. The second, less frequent, type of error was the substitution of an infinitive for the past participle. This kind of error occurred mainly in the second verb of a compound sentence, e.g.,

> *Un chien a venu et a mordre moi.
>
> (Un chien est venu et m'a mordu.) 'A dog came and bit me.'

As noted above, the past participle and the infinitive of verbs in the first conjugation are phonetically ambiguous. The error could thus be caused either because the learner overgeneralized this lack of distinction between the infinitive and the past participle, or because the infinitive was the only form that came readily to mind. In a few cases the third person singular present indicative was substituted for the required past participle, e.g.,

> *Ils regardent pour les arachides qu'ils ont /mɛ/ dans la terre.
>
> (Ils cherchent les arachides qu'ils ont mises dans la terre.) 'They are looking for the peanuts which they put in the ground.'

The fact that these errors seem to occur more frequently in compound sentences suggests that sentence length creates pressures under which rules, which have only been partially internalized, are not applied. These conclusions may also help to explain the omission of the auxiliary verb noted above in similar sentences.

Choice of tense. The third type of error in the *passé composé* was failure to use this tense in an obligatory context. This kind of error seems to be more persistent in the FH program where there are no significant differences in percentage of errors across the three grades, whereas in the FF program the percentage of errors decreases significantly between grade 1 and grade 2 (Table 12E). In fact, the proportion of errors reaches down to the 10% threshold in grades 2 and 3 in the FF program. Furthermore, there is a significant difference between the two programs at these two grade levels (grades 2 and 3). The francophone children were also not always consistent in their use of the passé composé (4% errors). However, as noted above, their errors were confined to particular contexts.

Infinitive Present

The pattern of development of the infinitive differs sharply in the two programs (Table 13A). In the FF program there is no significant increase in the mean number of obligatory contexts across the three grades and the children in grade 3 still provided fewer such contexts than the francophone children ($\bar{X} = 6.11$). In the FH program the infinitive is only sporadically produced in grades 1 and 2, but from grade 2 to grade 3 there is a significant increase in the mean number of obligatory contexts. Between the two programs there is a significant difference in grades 1 and 2, but not in grade 3. It should be noted that the units containing the infinitive consisted most frequently of the verbs vouloir 'want' and pouvoir 'can' + an infinitive. Since these units express a possible rather than an actual action, they are difficult to elicit without reference to the unit itself. Closer examination of the sentences produced by grade 1 children in the FH program showed that these children restricted their answers to concrete statements about what they saw in the pictures and frequently left further questions unanswered.

With regard to the percentage of errors, there are no significant differences across grades and between programs (Table 13B). As noted in chapter III, the percentage of errors was not calculated whenever the mean number of obligatory contexts was less than one; consequently, there is no percentage given for grade 1. The absence of significant differences between grades 2 and 3 of the FH program and between the two programs at the grade 2 level seems surprising since the percentage of errors in grade 2 of the FH program appears to be much higher than those in the other grades. It must, however, be remembered that this percentage is based on

Table 13

Infinitive Present

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 13A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	3.68	4.37	5.26	.241
FH	0.47	1.79	5.63	.000
p (programs)	.000	.004	.698	

Table 13B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	14	11	13	.808
FH	--	24	14	.339
p (programs)	--	.139	.932	

a very small number of obligatory contexts and that the statistical analysis is based on the comparison of the correct and incorrect instances.

Errors in the infinitive were similar to those noted for the past participle and consisted of either overgeneralized forms of the infinitive of verbs in the first conjugation or of present tense forms of the same verb. The latter kind of error occurred mainly when the present tense form had no phonetic connection with the infinitive, e.g.,

*Elle ne peut pas va.	
(Elle ne peut pas aller.)	'She cannot go (leave).'

The francophone children made no errors in this class.

One kind of error which was not included in the above analysis, but which, nevertheless, pertains to the incorrect use of the infinitive by the immersion students is noteworthy. It consists of the use of an infinitive in a sentence where the French structure requires a subordinate clause containing a verb in the subjunctive mood, thus contrasting with the corresponding English structure, e.g.,

*Elle veut le feu partir.	
(Elle veut que le feu parte (s'en aille).)	'She wants the fire to go away.'

This type of error starts to appear only in grade 2 and, though it does not occur frequently, it seems to increase rather than decrease in grade 3, sometimes involving deviant units which could be attributed to a combination of intralingual and L1 interlingual sources, e.g.,

*Elle a téléphoné la police pour venir.	'She called the police to come.'
(Elle a téléphoné aux pompiers pour qu'ils viennent/pour leur demander de venir.)	'She called the firemen and asked them to come.'

Incidentally, this particular sentence is deviant in both French and English, yet it was used by several grade 3 children in both the FF and the FH programs, suggesting a possible development in the children's grammar pertaining to the production of more complex sentence structures in both languages.

Idiomatic Expressions

As noted in chapter III, the idiomatic expressions refer to specific structures which require the use of the verb avoir 'to have' as a main verb, where the equivalent English structure requires the verb 'to be'. The results reported in Table 14A show that there are significant differences in the mean number of obligatory contexts between grade 3 and the other two grades in both programs, though between the two programs the means do not differ significantly from one another at any of the three grade levels. The grade 3 children in both programs provided slightly more contexts for idiomatic expressions than the francophone children ($\bar{X} = 5.44$). These results should, however, be interpreted with care since in many cases no direct question could be asked to elicit these expressions. Furthermore, the number of units produced with reference to age depended on the number of siblings in each child's family.

The percentage of errors decreases in both programs from grade 1 to grade 3. However, the difference between the percentages is only significant in the FH program and even here the decrease is not significant between adjacent grades (Table 14B). Between the two programs there is no significant difference at any of the three grade levels. The relatively high percentage of errors in all three grades is hard to explain since many of these expressions are included in the kindergarten and grade 1 curriculum. Closer examination of the children's answers revealed that units containing a subject in the first person singular were produced correctly more frequently than units containing a subject in the third person singular or plural. It is, however, impossible to determine whether this was due to the fact that these units were related to the children's personal experience and were, therefore, more frequently used by each child, or whether the children simply overgeneralized the form of the third person singular of the verb être (est) to the phonetically similar form of the first person singular of the verb avoir (ai). It is of interest to note that answers relating to age which contained no verb also showed probable L1 interference, e.g.,

Table 14

Idiomatic Expressions

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 14A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	4.84	3.68	6.53	.000
FH	4.26	5.00	6.89	.009
p (programs)	.499	.102	.558	

Table 14B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	86	75	73	.071
FH	81	73	62	.009
p (programs)	.608	.861	.104	

Tester:	
Dis-moi ton âge.	'Tell me your age.'
Francophone:	
Sept ans.	'Seven (years).'
Immers. stud.:	
*Sept.	'Seven.'

The francophone children made no errors in this class.

To summarize, the findings of this part of the study show that, whereas the number of obligatory contexts in most secondary classes of the verb increases significantly from grade 1 to 3 in both programs, there is little decrease in the percentage of verb errors across the three grades of either program. Furthermore, except for the third person singular present indicative, none of the verb forms examined is mastered by grade 3, according to the 10% error threshold criterion. As in the case of the pronouns, the number of verb contexts is initially (grade 1) greater in the FF program, but the increase in the number of these contexts is greater in the FH program so that in grade 3 the children in the FH program provided more such contexts than the children in the FF program. Finally, only in the case of the third person singular present indicative is the percentage of errors produced by the children in the FF program consistently lower than that produced by the children in the FH program.

Articles

In the major class of articles the distribution of the obligatory contexts across the three grades differs in the two programs (Table 15A). In the FF program there is a significant difference among the grades at the .05 level according to the one-way analysis of variance, but significantly different pairs of grades could not be identified because the Newman-Keuls test, which was used for this purpose, is a more convervative test than the analysis of variance test. In the FH program the increase in the number of obligatory contexts from grade 1 to grade 3 is more pronounced than that in the FF program and the mean number of obligatory contexts in grade 3 differs significantly from those in grades 1 and 2. The most noteworthy finding pertaining to the number of obligatory contexts is that at

Table 15

Articles

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 15A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	50.00	58.53	57.79	.045
FH	59.74	60.84	77.42	.001
p (programs)	.021	.578	.000	

Table 15B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	23	24	16	.000
FH	28	25	23	.016
p (programs)	.008	.375	.000	

all three grade levels the children in the FH program provided more such contexts than the children in the FF program. In grades 1 and 3 the difference between the programs is significant. This finding may be surprising at first sight since results from other grammatical classes have shown that in most cases the children in the FF program provided more obligatory contexts than the children in the FH program, especially in grades 1 and 2. When the above results are compared with those of the francophone children ($\bar{X}$ = 38.56), the disparity becomes even more striking. For an interpretation of this observation the article has to be seen within the larger context of the noun phrase. Here the speaker frequently has a choice between using a nominal group or a pronoun. As shown above, the number of obligatory pronoun contexts provided in the FH program was much smaller than that produced in the FF program at all three grade levels. Thus, the children in the FH program used a greater number of nouns, and hence articles, in their attempts to convey meaning.

The percentage of errors decreases from grade 1 to grade 3 in both programs (Table 15B). In the FF program the difference is significant between grade 1 and each of the other two grades. In the FH program the decrease in the percentage of errors is not significant between adjacent grades. Furthermore, the children in the FH program produced proportionally more errors than the children in the FF program at all three grade levels. In grades 1 and 3 the difference between the programs is significant. It should be noted that the performance of the children in both programs differs markedly from that of the francophone children (1% errors). The question arises as to how obligatory contexts and errors are distributed according to certain secondary classes of the article.

Masculine Singular Articles

The distribution of the masculine singular articles is similar in the two programs. The mean number of obligatory contexts increases slightly from grade 1 to grade 3, but does not differ significantly across the three grades of either program (Table 16A). The children in the FH program provided more such

Table 16

Masculine Singular Articles

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 16A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	16.53	19.00	19.58	.177
FH	22.05	19.95	23.32	.257
p (programs)	.003	.621	.075	

Table 16B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	8	8	4	.038
FH	11	10	8	.189
p (programs)	.234	.350	.042	

contexts than the children in the FF program, the difference is, however, only significant in grade 1. As in the case of the major class of articles, the francophone children provided far fewer obligatory contexts of masculine singular articles ($\bar{X} = 10.00$) than the immersion students.

The percentage of errors decreases from grade 1 to grade 3 in both programs, though this decrease is only significant in the FF program between grade 3 and the other two grades. Between the two programs, the only significant difference is in grade 3 (Table 16B). Furthermore, the children in all three grades of the FF program and the children in grades 2 and 3 of the FH program seem to have mastered the masculine singular article since the percentages of errors produced in those grades are below the 10% threshold.

Feminine Singular Articles

In both programs the number of obligatory contexts for the feminine singular articles increases from grade 1 to grade 3 (Table 17A). In the FF program the increase is most pronounced between grade 1 and grade 2; consequently, the mean number of these contexts in grade 1 differs significantly from those in grades 2 and 3. In the FH program the difference is only significant between grade 2 and grade 3. As in the case of the masculine articles, the children in the FH program provided more obligatory contexts for the feminine singular articles than the children in the FF program. In grades 1 and 3 this difference is significant. Furthermore, all six groups provided more feminine article contexts than the francophone children ($\bar{X} = 9.22$).

When the production of the feminine singular articles is compared to that of the masculine singular articles, it becomes apparent that the mean number of obligatory contexts for the masculine articles is higher than that for the feminine articles. This reflects the general trend of the language (Tucker, Lambert & Rigault, 1977). Spilka (1976) notes 53% masculine determiners and 47% feminine determiners in her data. In the present study, this disparity is slightly higher (57% masculine article contexts and 43% feminine article contexts) for the immersion students,

Table 17

Feminine Singular Articles

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 17A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	9.79	15.11	13.58	.001
FH	15.63	15.94	19.74	.046
p (programs)	.001	.737	.001	

Table 17B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	46	47	29	.000
FH	50	41	41	.040
p (programs)	.480	.212	.002	

though for the francophone children the proportions are similar to Spilka's. This lower percentage of feminine article contexts found in the production of the immersion students in the present study may be partly attributed to the fact that several test pictures depicted a woman to which the immersion students referred to as _maman_ 'mummy', whereas the francophone children referred to her as _sa maman_ 'his/her mummy' or la _mère_ 'the mother'. It is of interest to note that although the absence of the determiner in front of _maman_ is not incorrect, it suggests transfer from L1 which may be reinforced by the fact that it avoids the necessity of having to choose the appropriate determiner.

The percentage of errors decreases significantly from grade 1 to grade 3 in both programs (Table 17B). In the FF program the difference is significant between grade 2 and grade 3, whereas in the FH program the difference is significant between grade 1 and grade 2. The comparison between the two programs indicates that here the only significant difference is found in grade 3. When the proportion of errors of the feminine singular articles is compared to that of the masculine singular articles, it becomes apparent that the percentage of errors of the feminine articles is much higher than that of the masculine articles in both programs and at all three grade levels. The summation of the gender errors in both these classes shows that 79% of all the errors are in the feminine article. Closer examination of the deviant forms revealed that all the errors were caused by the substitution of the masculine form for the required feminine form. The trend to overgeneralize the masculine article has been found by other researchers in both French and Spanish (Cohen, 1976; Swain, 1976). Swain notes that, in the data she examined, the grade 1 children in a French immersion program in Toronto produced approximately the same number of errors in masculine as in feminine articles and that the overgeneralization of the masculine article only occurred by grade 2. This view is, however, not supported by the results from the present study which suggest that the masculine article seems to be already overgeneralized in grade 1. The difficulty L2 learners experience with the French gender system is not reflected in the speech patterns of the francophone children who made no errors in either masculine or feminine articles.

Plural Articles

The distribution of the obligatory contexts for the plural articles across the three grades differs in the two programs. In the FF program the mean number of these contexts increases from grade 1 to grade 3, but this increase is not significant, whereas in the FH program the increase is such that the mean in grade 3 is significantly different from those in grades 1 and 2 (Table 18A). The comparison between the two programs shows that in grade 1 the children produced approximately the same number of obligatory contexts in both programs, whereas in grades 2 and 3 the children in the FH program provided more such contexts than the children in the FF program. In grade 3 this difference is significant. As in the case of the masculine and feminine singular articles, the francophone children provided fewer obligatory contexts for plural articles ($\bar{X} = 9.56$) than the immersion students.

The percentage of errors decreases from grade 1 to grade 3 in both programs (Table 18B), but the decrease is only significant in the FF program between grade 1 and grade 2. Between the two programs the only significant difference is at the grade 2 level. It should be noted that the percentages of errors are very low for all six groups and if the 10% threshold is used as criterion, the children in all three grades of the FH program and the children in grades 2 and 3 of the FF program have mastered the plural article. Most of the errors were caused by the substitution of an article other than the one required by the context. Omission errors occurred only sporadically (4% of all the errors in the plural articles) and occurred either in one word answers or in front of the second or third noun in a sequence, e.g.,

> *La petite fille a donné
> à manger à des lapins et
> écureuils et oiseaux.

Table 18

Plural Articles

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 18A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	10.63	10.74	11.26	.863
FH	10.16	11.16	15.68	.000
p (programs)	.736	.699	.001	

Table 18B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades
FF	11	1	6	.000
FH	9	6	5	.272
p (programs)	.600	.027	.884	

(La petite fille a donné à manger à des lapins, à des écureuils et à des oiseaux.)	'The little girl gave food to rabbits, squirrels and birds.'

It should be noted that both the preposition and the article have been omitted here. It is possible that the error is caused by L1 interference since in English the preposition does not have to be repeated and there is no article corresponding to des. However, it is also possible that, as in the case for certain verb errors in compound sentences, the error is caused by the length of the sentence. The finding that the immersion students made so few errors in the plural articles is noteworthy since this article is not marked in their L1. As in the case of the singular articles, the francophone children produced no errors in the plural articles.

The Elided Form " l' "

In both programs the number of obligatory contexts for the elided form increases from grade 1 to grade 3, but in the FF program the means do not differ significantly from one another, whereas in the FH program there is a significant difference between the mean number of obligatory contexts in grade 3 and those in the other two grades (Table 19A). The comparison between the two programs shows that in grade 3 the children in the FH program provided significantly more of these contexts than the children in the FF program. As in the previously discussed classes of the article, the children in all three grades of both programs produced more obligatory contexts than the francophone children ($\bar{X} = 2.78$).

There is no significant difference in the percentage of errors among the three grades in either program, but the pattern of development in the FF program is somewhat irregular due to the initial increase in the percentage of errors from grade 1 to grade 2 (Table 19B). However, the proportion of errors in all three grades of the FF program reaches down to the 10% threshold. The most interesting observation to be made about the results in this grammatical class is the

Table 19

The Elided Form l'

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 19A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	4.74	5.32	6.26	.185
FH	3.79	4.68	8.32	.000
p (programs)	.220	.415	0.28	

Table 19B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	2	10	5	.063
FH	18	12	12	.377
p (programs)	.001	.758	.072	

extremely low percentage of errors produced in grade 1 of the FF program. Closer examination of the deviant structures revealed that all the errors of the elided from in grade 1 were produced by one child, whereas in each of the other two grades of this program the errors were produced by approximately one fourth of the children. These findings suggest that here, as in the case of the reflexive pronoun, most children in grade 1 may have used the elided form in conjunction with the following noun, e.g., l'école as a prefabricated pattern, whereas in grades 2 and 3 the article may have been recognized as a separate element of structure and its conventional form (le or la) then replaced the correct elided form more frequently. Further evidence that the structure 'elided form + noun' may be seen by the grade 1 children as a single unit can be seen in the occasional doubling of the article in grade 1 resulting in units such as *le arbre 'the tree'. By contrast to grade 1, there was only one such error in grade 2 and none in grade 3. Another type of error that was noted in grade 2 of the FF program and in grades 2 and 3 of the FH program was the omission of the elided form. This type of error was, however, only noted in the following context:

*Il a d'argent.
(Il a de l'argent.) 'He has money.'

In the case of the francophone children no errors pertaining to the elided form were found.

The comparison between the two programs shows that the only significant difference in the error percentages occurs in grade 1 where the children in the FH program made proportionally more errors in the elided form than children in the FF program. Furthermore, here the errors were produced by one third of the children in grade 1. If the correct production of the elided form is attributed to the possible use of a prefabricated pattern in the early stages of L2 learning, the question arises as to why such a prefabricated pattern was less frequently used in grade 1 in the FH program. One possible explanation may be that the simultaneous learning of two second languages may create greater linguistic awareness in the learner. Such a hypothesis is based on research pertaining to the comparison of cognitive strategies used by bilingual and monolingual children in language processing. Ben Zeev (1972, 1977) investigated the influence of bilingualism on syntactic and semantic processing and found that bilingual children (Hebrew-English speaking children in the case of the first study and Spanish-English speaking children in the case of the second study) possessed a greater ability to analyze and reorganize linguistic input than monolingual (English speaking) children. It is of special interest to note that Ben Zeev found that this ability was more pronounced for the Hebrew-English bilinguals and concluded that language similarity (in her case Spanish and English) may provide less of a challenge to reorganizational ability. It is possible that the learning of Hebrew by children in the FH program may influence these children's performance in both second languages.

Contracted Forms

The first observation to be made about the results pertaining to the contracted forms is the small number of obligatory contexts provided in all three grades of the two programs (Table 20A). Furthermore, the mean number of these contexts does not differ significantly across the three grades of each program, though when the two programs are compared at each grade level, there is a significant difference between the means in grade 3. The absence of any significant increase in the means between grade 1 and grade 3 should, however, not be seen as the result of any avoidance strategy, but rather as the result of the limited contexts in which this form appeared in the tests, as attested by the equally low number of obligatory contexts provided by the francophone children ($\bar{X} = 3.00$).

The decrease in the percentage of errors differs in the two programs (Table 20B). In the FF program there is no significant difference in the proportion of errors across the three grades, whereas in the FH program the difference is significant between grade 1 and grade 3; the decrease is, however, not significant between adjacent grades. The comparison between the two

Table 20

Contracted Forms

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 15A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	2.84	2.95	2.32	.568
FH	2.47	3.00	3.58	.105
p (programs)	.530	.931	.024	

Table 20B Percentage of Errors

	Grade 1	Grade 2	Grade 2	p (grades)
FF	93	93	80	.062
FH	97	91	80	.036
p (programs)	.805	.978	.945	

programs shows no significant differences at any grade level and in grade 3 the percentage of errors is the same in both programs. The most striking finding pertaining to the development of the contracted forms is the high percentage of deviant forms produced by all six groups. Closer examination of these forms revealed that all the errors were caused by the failure to contract the preposition with the article. The finding that the contracted form was not overgeneralized to inappropriate contexts suggests that there seems to be little readjustment in the learner's L2 grammar with respect to this form. It should be noted that Hamayan (1978) did find overgeneralizations of the contracted form in grades 3 and 5. It is possible that there are differences in the contexts in which the contracted forms could occur in the two studies. Hamayan's examples such as *au montagne suggest that they referred to places, whereas in the present study the contracted form was mostly elicited in contexts such as:

*Elle donne un manteau à le petit garçon.	
(Elle donne un manteau au petit garçon.)	'She gives the little boy a coat.'
*Le professeur dit à les deux filles...	
(Le professeur dit aux deux filles...)	'The teacher tells the two girls ...'

This error could be attributed to L1 interference since English does not have an equivalent rule for this particular structure. It should, however, be noted that the proportion of errors produced by the francophone children is also relatively high (11%). In fact, of all the classes examined in this study, the contracted form is the only class in which the francophone children did not fully reach down to the 10% threshold.

The Reduced Form "de"

As in the case of the contracted forms, there are no significant differences in the mean number of obligatory contexts for this particular form of de across the three grades of both programs (Table 21A). The comparison between the two programs shows that the children in the FH program provided more such contexts than the children in the FF program, but the difference between the means is only significant in grade 3. Furthermore, the children in all six groups produced more obligatory contexts than the francophone children ($\overline{X} = 4.00$). A noteworthy finding pertaining to these results is the fact that the mean number of obligatory contexts decreases slightly from grade 1 to grade 3 in the FH program, whereas it increases proportionally in the FH program between the same grades. Closer investigation of the contexts in which the reduced form de was used revealed that the children in grades 2 and 3 of the FF program used this form less frequently in negative constructions than the children in the FH program, e.g.,

FH child:

*Ce garçon a un chapeau et il n'a pas un chapeau.	
(Ce garçon a un chapeau et il n'a pas de chapeau.)	'This boy has a hat and he doesn't have a hat.'

FF child:

*Ce garçon a un chapeau et l'autre n'a pas.	'This boy has a hat and the other one doesn't.'

Thus, while the child in the FH program provided an obligatory context for de, but failed to produce the required form, the child in the FF program seems to have omitted the pronoun en, an issue which has been discussed above.

There are no significant differences in the percentages of errors among the three grades of each program and the only significant difference between the two programs is in grade 3 (Table 21B). Further investigation revealed that 71% of all the errors produced in this class pertained to negative constructions whilst 29% pertained to units containing an adverb of quantity; on the other hand, the pictures elicited only twice as many negative constructions as units containing an adverb of quantity. The greater proportion of errors in negative constructions may be due to the fact that the linguistic environment is invariable for units pertaining to adverbs of quantity sinc

Table 21

The Reduced Form de

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 21A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	5.47	5.42	4.79	.398
FH	5.63	6.11	6.79	.182
p (programs)	.785	.260	.002	

Table 21B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	35	35	30	.727
FH	42	35	49	.105
p (programs)	.389	.936	.010	

de always appears after certain adverbs of quantity such as beaucoup 'many/much', assez 'enough', etc.; whereas other determiners can appear after the negative particle pas, e.g.,

Il n'a pas son livre.	'He doesn't have his book.'
Elle n'a pas le même livre que moi.	'She doesn't have the same book as I.'

Furthermore, in such sentences the determiner is the same for both the affirmative and the negative structure. The learner may, therefore, deduce that the determiner does not change in the negative form of the sentence. The relative difficulty of the reduced de form is also reflected in the francophone children's speech pattern (6% errors, all of which pertained to negative constructions). Neither the immersion students nor the francophone children were consistent in their use of the reduced form, i.e., the same child might use once pas de and once pas un/pas une. It should be noted that whilst the structure pas un/pas une is possible in certain contexts, such contexts were not provided by the children. In the case of nouns starting with a vowel, immersion students also sometimes overgeneralized the reduced form de (elided to d') to the corresponding affirmative structure. This error was counted as an omission error of the elided form and has been noted above. These findings suggest that the learner has not yet been able to deduce in what contexts the reduced form de is to be used.

To summarize, in most of the secondary classes of the article investigated in this study, the children in all three grades of the FH program provided more obligatory contexts for articles and, by implication, more nouns than the children in the FF program. The most persistent error was found to be the failure to produce the contracted forms of the article. Errors in gender were distributed according to a pattern similar to that found for the masculine and feminine subject pronouns, i.e., the masculine article forms were mostly overgeneralized to feminine contexts, causing a relatively high percentage of errors in the feminine articles. Finally, according to the 10% threshold criterion, the children in grade 3 of the FF program had mastered three out of the six secondary classes of the article, whereas the children in grade 3 of the FH program had mastered only two of these classes.

Adjectives

In the major class of adjectives the distribution of the obligatory contexts differs in the two programs. In the FF program there is a steady increase from grade 1 to grade 3 and the mean in grade 3 differs significantly from those in grades 1 and 2 (Table 22A). In the FH program there is a significant increase in the number of obligatory contexts from grade 2 to grade 3, but there is no significant overall increase from grade 1 to grade 3 because of the decrease in the number of these contexts from grade 1 to grade 2. Closer examination of the data revealed some interesting strategies of communication used by the L2 learners with reference to adjectives expressing opposite concepts. Thus, with reference to the adjectives *gros* 'fat' and *maigre* 'thin', which were visually depicted by a fat woman and a thin woman (see Appendix A, set VI), the following development was noted. In grade 1, most children in both programs used *grand* 'big' and *petit* 'small' to describe the two women. This may not only be due to the lack of the appropriate terms in French, but also the failure to recognize the concept itself since half of the francophone children similarly used *grand* and *petit*. Furthermore, in the FH program the children did not always produce complete responses to this picture. In grade 2 the children in both programs frequently used the adjective *gros* to describe the fat woman and then compared the thin woman to the fat one by using one of the following two structures:

Cette dame est plus grosse que l'autre.	'This lady is fatter than the other one.'
Ici la dame est grosse et ici la dame n'est pas grosse.	'Here the lady is fat and here the lady is not fat.'

The first structure was, however, mainly produced by the children in the FF program who also used adjectives such as *épais*

Table 22

Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 22A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	14.05	14.53	18.26	.029
FH	19.53	16.00	20.42	.041
p (programs)	.003	.332	.279	

Table 22B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	33	38	28	.023
FH	38	32	30	.050
p (programs)	.216	.193	.559	

'thick' and mince 'thin' to describe the two women. These structures continued to be produced in grade 3. The children in both programs now also contrasted gros with mince. The adjective maigre, which was used by some of the francophone children, was not produced by the immersion students.

The comparison between the two programs shows that the children in the FH program provided more adjective contexts than the children in the FF program at all three grade levels. In grade 1 this difference is significant. It should be noted that adjectives can be used in two different types of structure: (1) they can form part of the nominal phrase, e.g., une grosse pomme 'a big apple'; (2) they can form part of the verbal phrase, e.g., ce crayon est jaune 'this pencil is yellow'. In the latter case, the adjective can be elicited through a question whereas, in the former case the use of the adjective depends entirely on the speaker. In this study the most frequently used adjective in a nominal phrase was petit which was produced in expressions such as le petit garçon 'the little boy' and la petite fille 'the little girl'. These findings explain why children in the FH program produced more adjectives than children in the FF program since the latter pronominalized this type of nominal phrase more frequently. Moreover, this distribution is similar to that noted for the number of obligatory contexts of the article (Table 14A) and, as in the case of the article, the mean number of adjective contexts produced in all three grades of the FH program exceeds that provided by the francophone children ($\bar{X} = 15.00$).

The percentage of errors decreases in both programs (Table 22B). In the FF program this decrease is significant between grade 2 and grade 3, whereas in the FH program it is significant between grade 1 and grade 3, but not between adjacent grades. There is also no significant difference between the two programs at any grade level. Furthermore, in both programs the percentage of errors produced in grade 3 is still markedly higher than that of the francophone children (1% errors).

The majority of errors were errors of gender. Errors in the position of the adjective within the noun phrase occurred only in isolated instances and were, therefore, not included in the statistical analysis. When such errors did occur, they seemed to indicate L1 interference not only in the position of the adjective, but in the structure of the entire sentence, e.g.,

*C'était un froid jour.	
(Il faisait froid ce jour-là.)	'It was a cold day'

It is interesting that the structure il fait froid 'it is cold', which is the commonly used expression when referring to cold weather, was produced by most of the francophone children, whereas immersion students in both programs used most frequently the structure c'est froid which parallels the corresponding English structure 'it is cold'.

Masculine Adjectives

The pattern of development of the masculine adjectives differs in the two programs (Table 23A). In the FF program there is an increase in the number of obligatory contexts from grade 1 to grade 3 and the mean in grade 3 differs significantly from those in grades 1 and 2. In the FH program there are no significant differences among the three grades. Between the two programs the only significant differences is in grade 1 where the children in the FH program provided more obligatory contexts than the children in the FF program. Furthermore, all six groups produced more such contexts than the francophone children ($\bar{X} = 6.73$).

The percentage of errors decreases significantly from grade 1 to grade 3 in the FH program and the percentages in all three grades differ significantly from one another (Table 23B). In the FF program there is no significant difference among the three grades with regard to the percentage of errors. The comparison between the two programs shows that the children in the FH program produced proportionally more errors than the children in the FF program. In grade 1 the difference between the

Table 23

Masculine Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 23A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	7.26	7.05	10.47	.015
FH	10.42	7.74	10.74	.060
p (programs)	.022	.487	.869	

Table 23B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	11	10	12	.924
FH	29	18	13	.000
p (programs)	.000	.079	.832	

two programs is significant, but in grade 3 the difference is very small and both grade 3 groups are close to the mastery criterion (errors $<$ 10%). Their performance is, however, still markedly inferior to that of the francophone children who made no errors in this class.

Feminine Adjectives

There is no significant increase in the mean number of obligatory contexts for the feminine adjectives across the three grades of either program (Table 24A). At all three grade levels the children in the FH program provided more feminine adjective contexts than the children in the FF program. In grade 1 and in grade 3 the difference between the two programs is significant. Furthermore, the number of obligatory contexts provided in these two grades of the FH program exceeds that produced by the francophone children ($\bar{X}$ = 8.29).

The percentage of errors also does not change significantly across the three grades in either program, but the pattern of development is different in each program (Table 24B). In the FF program there is an initial increase in the percentage of errors between grades 1 and 2, followed by a decrease between grades 2 and 3. By contrast, in the FH program there is an initial decrease in the proportion of errors between grades 1 and 2, followed by an increase between grades 2 and 3, so that the children in grade 3 produced proportionally slightly more errors than the children in grade 1. It is this irregular pattern of development across the three grades which causes the percentage of errors produced in grade 2 of the FH program to be significantly lower than that produced in grade 2 of the FF program.

Most of the errors were errors of gender, i.e., errors occurred because the children produced the uninflected masculine form in contexts requiring inflected feminine form. This overgeneralization of the masculine form follows the general trend observed for the masculine and feminine subject pronouns and for the masculine and feminine articles. It is of interest

Table 24

The Feminine Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 24A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	6.79	7.47	7.79	.327
FH	9.11	8.26	9.68	.259
p (programs)	.002	.330	.025	

Table 24B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	57	63	49	.072
FH	48	45	49	.771
p (programs)	.188	.004	.971	

to note that, whereas there was significant progress between grades 1 and 3 towards mastery of both the feminine pronouns and the feminine articles, this is not the case for the feminine adjectives. This may be due to the fact that the semantic content of the adjective is its most salient feature and, since the latter is not affected by gender, the uninflected masculine form continues to be overgeneralized more frequently. On the other hand, it should be pointed out that the number of errors in the masculine adjectives is proportionally higher than those in the masculine pronouns and in the masculine articles. These findings suggest that there may be more confusion in the learner system as to which form to use. Alternatively, it is possible that in some cases only the feminine form of the adjective is retained by the learner and used in both masculine and feminine contexts. Similar results have been noted by Stevens (in preparation), who studied the oral production patterns of immersion students in grades 1, 4 and 6, and found that the adjective blanc 'white' was only used in its feminine form blanche by some of the children in all three grades.

Aside from gender errors, there was a small percentage of errors in the stem of the adjective, most of which pertained to the adjective ouvert 'open', which was sometimes produced as */uvre/ by analogy to adjectives such as fermé 'shut', cassé 'broken', etc., that are derived from verbs of the first conjugation. This error was particularly frequent in grade 2 of the FF program, whilst children in grade 2 of the FH program mostly avoided this form and used pas fermé 'not shut' instead. It should be noted that, as in the case of the feminine pronouns and articles, the feminine adjectives presented no difficulty for the francophone children (1% errors).

Two further aspects regarding the use of adjectives by the immersion students are noteworthy. Firstly, the children's repertoire of adjectives was very limited. Aside from the contrasting pair grand and petit, most children, even in grade 3, produced only one member of a contrasting pair and used a negative construction instead of the opposite member, e.g.,

Un crayon est long et l'autre n'est pas long.	'One pencil is long and the other one isn't.'

Similar patterns have been noted above for other adjectives.

Secondly, the children in both programs frequently avoided the problem of gender agreement by using the présentative c'est 'it is', e.g.,

Tester:

Comment est la porte dans cette image?	'How is the door in this picture?'

Child:

*C'est ouvert.	'It is open.'

By contrast, the francophone children responded by either substituting the appropriate pronoun elle for the noun porte 'door':

Elle est ouverte.	'She (it) is open.'

or by omitting the subject and verb of the above sentence, thus only giving the adjective itself. In either case, the adjective was always given in the feminine. It is, therefore, not only the adjective, but the entire construction which differs from the expected response.

To summarize, the adjectival system does not seem to be well developed in the immersion students' grammar in terms of lexical range and correctness of usage. Although gender errors follow the same pattern as that noted for the pronouns and the articles, the percentage of errors is proportionally higher, especially in the case of the feminine adjectives. Furthermore, even the masculine adjectives are not yet fully mastered by five of the six groups if the 10% error threshold is used as criterion.

Prepositions

In order to analyze the immersion students' use of French prepositions as completely as possible, the obligatory contexts in this class include also those instances where the children inserted an unnecessary preposition, thus creating an assumed obligatory context. The mean number of these contexts increases from grade 1 to grade 3 in both programs (Table 25A). In the

FF program the increase is most pronounced between grade 1 and grade 2, so that the mean number of preposition contexts in grade 1 differs significantly from those in grades 2 and 3. In the FH program the increase between adjacent grades is most pronounced between grade 2 and grade 3, so that here the mean in grade 3 differs significantly from those in grades 1 and 2. Between the two programs there is no significant difference at any grade level. The children in all six groups provided more preposition contexts than the francophone children ($\bar{X} = 12.85$). This difference can be attributed to several factors. Firstly, immersion students frequently used prepositions in structures which did not necessarily require a preposition, e.g.,

Immers. stud.:

*Les écureuils vient pour manger.	'The squirrels come to eat.'

Francophone:

Ils viennent manger.	'They come to eat.'

It should be noted that the immersion student's sentence is marked incorrect because the verb *vient is not in the required plural form. Secondly, when the immersion students failed to produce a contracted form with an additional error in the gender of the article, the preposition occurrence of this structure was counted as an obligatory context, e.g.,

Immers. stud.:

*La maman donne un manteau à la petite garçon.	'The mother gives a coat to the little boy.'

Francophone:

La maman donne un manteau au petit garçon.	'The mother gives a coat to the little boy.'

Thirdly, when the immersion students used object pronouns, they frequently failed to use the conjunctive form for indirect object pronouns, e.g.,

Immers. stud.:

*La maman donne un manteau à lui.	

Francophone:

La maman lui donne un manteau.	'The mother gives him a coat.'

Table 25

Prepositions

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade and Program

Table 25A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p (grades)
FF	19.00	24.53	23.79	.016
FH	16.53	20.42	27.68	.001
p (programs)	.339	.093	.086	

Table 25B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p (grades)
FF	34	25	21	.000
FH	34	28	22	.001
p (programs)	.987	.275	.680	

The percentage of errors decreases from grade 1 to grade 3 in both programs (Table 25B). In the FF program the difference is significant between grade 1 and the other two grades. In the FH program the difference is significant between grade 1 and grade 3, but there is no significant difference between adjacent grades. Between the two programs there is no significant difference at any grade level.

Most of the errors occurred when the prepositions did not denote spatial relationships. This was equally true for the francophone children who produced 9% errors in prepositions. Omission of a preposition which constituted 40% of all the preposition errors produced by immersion students, and intrusion of a preposition which constituted 22% of all preposition errors could mainly be attributed to L1 interference. Substitution errors which constituted 38% of all preposition errors could be attributed to both inherent difficulties in the target language and L1 interference.

The most frequent omission error was caused by the verb téléphoner 'to phone' which has to be followed by the preposition à in the context téléphoner à quelqu'un whereas the corresponding English structure 'to phone someone' does not require a preposition. This error was also found in the speech of some of the francophone children and may be the result of language contact, a phenomenon frequently noted in communities such as Montreal which are largely bilingual (Weinreich, 1953/1970).

Intrusion errors were frequently caused by the addition of the preposition de in front of an infinitive where the corresponding English structure would be 'to + infinitive', e.g.,

*Il veut de prendre
une noix.

(Il veut prendre une noix.) 'He wants to take a nut.'

Another intrusion error was observed when the corresponding English structure contains a verbal group consisting of a 'verb + preposition', e.g.,

*Il met son manteau sur.

(Il met son manteau.) 'He puts his coat on.'

The most frequent error of this type was caused by the English expression 'to look for' which was rendered in French as *_regarder pour_, whereas the correct French equivalent is the verb _chercher_. This term is, however, polysemantic and can mean either 'to look for' or 'to fetch' (when used with _aller_ 'to go'). Closer examination of the children's oral production revealed that even children who used the verb _chercher_ in the context of 'to fetch' rendered 'to look for' as *_regarder pour_. It is thus possible that this error may be traced to lexical divergence between the two languages, a subject which is beyond the scope of the present study.

Substitution errors occurred frequently with expressions requiring the preposition _en_, which can be rendered in English as 'in' or 'into', e.g.,

*Dans l'hiver
(En hiver) 'In winter'

The error is probably caused by the overgeneralization of _dans_ which is more frequently used to denote the spatial relationship 'in'. It should be noted that the entire structure _dans + article_ has been correctly substituted for the preposition _en_ in spite of the absence of an article in the corresponding English structure.

Another frequent substitution error was the use of _pour_ in a structure containing the concept of purpose or goal, e.g.,

*Elle donne quelque chose pour manger à les animals.
(Elle donne quelque chose à manger aux animaux.) 'She gives the animals something to eat.'

Substitution errors which could be attributed to L1 interference frequently caused the entire expression to be awkward, e.g.,

*Sa maison est sur feu.

which could be reconstructed as:

Sa maison est en feu. 'Her house is on fire.'

The francophone children, however, described the situation as:

Il y avait un incendie. 'There was a fire.'

or

Il y avait un feu dans la maison. 'There was a fire in the house.'

Table 26

Percentage of Omission, Intrusion and Substitution Errors Across the Three Grades

	Grade 1	Grade 2	Grade 3	(total)	p
Omission	14	14	12	(40)	.537
Intrusion	5	8	9	(22)	.032
Substitution	12	12	14	(38)	.826

Children in the FH program occasionally substituted a Hebrew preposition for the corresponding French one, e.g.,

*... marchent el l'école.

(Elles vont à l'école.) 'They walk to school.'

It is of interest to note that the proportion of omission and substitution errors varies only slightly across the three grades whilst the percentage of intrusion errors increases significantly across the three grades (Table 26). By comparison, the francophone children made only omission and substitution errors. These findings suggest that, in the case of prepositions, L1 interference errors may be more persistent than other types of errors.

To summarize, the analysis pertaining to the immersion students' production of prepositions indicates that there are no significant differences between the two programs in either the mean number of preposition contexts or the percentages of errors. Omission and substitution errors have been identified as the most frequent kinds of errors and although there is a significant decrease in the percentage of errors from grade 1 to grade 3 in both programs, the relatively high percentage of errors produced by the francophone children suggests that the correct use of French prepositions may be difficult to master.

Conclusion

This part of the study has focused on the oral production in French in the two immersion programs. Five major classes, four of which were further subdivided into 17 secondary classes, have been examined. Two aspects of production were investigated: (1) the number of obligatory contexts, and (2) the percentages of errors produced in each class.

The results pertaining to the obligatory contexts indicate that at all three grade levels the children in the FH program provided more article and adjective contexts than the children in the FF program who, in turn, provided more such contexts than the francophone children. On the other hand, the francophone children provided more pronoun contexts than the children in the FF program who, in turn, provided more such contexts than the children in the FH program in grades 1 and 2. These findings suggest that one of the strategies of simplification used by L2 learners may be the avoidance of pronominalization, particularly in situations where the context (in this case the tester's questions) frequently provides the vocabulary or structure of the non-pronominalized noun phrase. Such a strategy seems particularly pronounced in the early stages of L2 learning, as suggested by the performance of grade 1 and grade 2 children in the less intensive FH program.

The most noteworthy finding pertaining to the percentages of errors is the relatively small number of grammatical features that were mastered by grade 3. The children in the FF program produced less than 10% errors in only five secondary classes (masculine subject pronouns, third person singular present indicative, masculine singular article, plural articles and the elided form l'). The children in the FH program produced less than 10% errors in all of the same classes except for the elided form. On the other hand, the incorrect forms produced in grade 3 still exceed 50% of the obligatory contexts in four classes in the FF program (reflexive pronouns, passé composé, idiomatic expressions and contracted forms) and in six classes in the FH program (object pronouns, reflexive pronouns, third person plural present indicative, passé composé, idiomatic expressions and contracted forms).

The similarity between the two programs with regard to the percentage of errors of the different classes compared above suggests that there may be a certain degree of uniformity in the order in which the different classes that were examined in the present study are learned. The classes were, therefore, ranked at each of the three grade levels according to an order of increasing percentage of errors. When rank order correlations between the two programs were calculated significant correlations were found at each grade level (Tables 27, 28 and 29). Similarly, significant correlations were found among the three grades of the FF program ($W = .938$, $p < .01$) and among the three grades of the FH program ($W = .983$, $p < .01$). It should be noted

Table 27

Rank Orders of Seventeen Classes According to Increasing Percentages of Errors for Grade 1

FF			FH		
Class	Rank	%	Class	Rank	%
elid.form l'	1	2	masc.subj.pron.	1	4
masc.subj.pron.	2	4	pl.art.	2	5
masc.sg.art.	3	8	masc.sg.art.	3	11
3rd p.sg.pres.	4	8	3rd p.sg.pres.	4	14
pl.art.	5	11	elid.form l'	5	18
masc.adj.	6	11	masc.adj.	6	29
prep.	7	34	prep.	7	34
red.form de	8	35	red.form de	8	42
fem.sg.art.	9	46	fem.subj.pron.	9	46
passé composé	10	51	fem.adj.	10	48
fem.adj.	11	57	fem.sg.art.	11	50
fem.subj.pron.	12	58	passé composé	12	63
3rd p.pl.pres.	13	70	3rd p.pl.pres.	13	71
idiom.expr.	14	86	idiom.expr.	14	81
reflex.pron.	15	91	obj.pron.	15	84
contr.forms	16	93	reflex.pron.	16	88
obj.pron.	17	94	contr.forms	17	97

rho $=$ .934; $p < .01$

Table 28

Rank Orders of Eighteen Classes According to Increasing Percentages of Errors for Grade 2

FF			FH		
Class	Rank	%	Class	Rank	%
pl.art.	1	1	masc.subj.pron.	1	2
3rd p.sg.pres.	2	4	pl.art.	2	6
masc.subj.pron.	3	5	masc.sg.art.	3	10
masc.sg.art.	4	8	elid.form _l'_	4	12
masc.adj.	5	10	3rd p.sg.pres.	5	13
elid.form _l'_	6	10	masc.adj.	6	18
infinitive	7	11	infinitive	7	24
prep.	8	25	prep.	8	28
red.form _de_	9	35	red.form _de_	9	35
fem.subj.pron.	10	41	fem.sg.art.	10	41
fem.sg.art.	11	47	fem.subj.pron.	11	43
3rd p.pl.pres.	12	55	fem.adj.	12	45
passé composé	13	55	passé composé	13	59
fem.adj.	14	63	3rd p.pl.pres.	14	67
reflex.pron.	15	69	idiom.expr.	15	73
idiom.expr.	16	75	reflex.pron.	16	88
obj.pron.	17	83	contr.forms	17	91
contr.forms	18	93	obj.pron.	18	92

rho = .969; $p < .01$

Table 29

Rank Orders of Eighteen Classes According to Increasing Percentages of Errors for Grade 3

FF			FH		
Class	Rank	%	Class	Rank	%
masc.subj.pron.	1	1	masc.subj.pron.	1	2
3rd p.sg.pres.	2	2	pl.art.	2	5
masc.sg.art.	3	4	3rd p.sg.pres.	3	7
elid.form 1'	4	5	masc.sg.art.	4	8
pl.art.	5	6	elid.form 1'	5	12
masc.adj.	6	12	masc.adj.	6	13
infinitive	7	13	infinitive	7	14
fem.subj.pron.	8	13	prep.	8	22
prep.	9	21	fem.subj.pron.	9	35
fem.sg.art.	10	29	fem.sg.art.	10	41
red.form de	11	30	red.form de	11	49
obj.pron.	12	35	fem.adj.	12	49
3rd p.pl.pres.	13	47	3rd p.pl.pres.	13	56
fem.adj.	14	49	passé composé	14	58
passé composé	15	52	obj.pron.	15	59
idiom.expr.	16	73	idiom.expr.	16	62
contr.forms	17	80	reflex.pron.	17	78
reflex.pron.	18	86	contr.forms	18	80

rho $= .958$; $p < .01$

that the infinitive was not included in the rank orders for grade 1 (Table 27) since the percentage of errors was not calculated for that class in grade 1 of the FH program. For the same reason, that class was not included in the rank order correlations calculated for the three grades within the FH program. These results suggest that neither intensity of program nor cumulative time of exposure to the L2 seem to greatly influence the hierarchy of difficulty according to which the classes examined in this study appear to be learned. As noted in chapter I, similar results have been found by various researchers investigating the learning of English as a second language. Bailey, Madden and Krashen (1974), in particular, found a high degree of agreement with regard to the order of difficulty of the eight English morpheme structures examined in spite of differences in instructional programs and in the amount of exposure to English by the learners.

With regard to French, Bautier-Castaing (1977) examined the oral production of 75 non-francophone children aged 4 - 8 and residing in France for nine months or less. She found that the elided form, the singular present tense of regular and irregular verbs, the plural present tense of regular (but not irregular) verbs and infinitives had been mastered. On the other hand, gender-related structures such as adjectives and subject pronouns, as well as object pronouns, contracted forms and the use of certain prepositions introducing infinitives were not considered mastered. Finally, the plural present tense of irregular verbs, and the choice of auxiliaries in compound tenses were reported in the process of being mastered. These findings are in agreement with the results pertaining to the hierarchy of difficulty found in the present study in that the classes noted by Bautier-Castaing as mastered rank above those that were noted as not having been mastered. However, the two classes, which were reported by Bautier-Castaing as being in the process of being mastered, rank comparatively low on the hierarchy of difficulty. Furthermore, Bautier-Castaing reports that gender errors in the article occurred only infrequently, whereas in the present study this is true for the masculine articles, but not for the feminine ones. These differences in performance may be due to the immersion students' lack of contact with francophone peers in the classroom and to the lack of additional informal exposure to French which Bautier-Castaing's children have had. Another noteworthy finding pertaining to Bautier-Castaing's study is the absence of expressions such as avoir faim 'to be hungry' which were produced with a high percentage of errors in the present study. Since Bautier-Castaing's tests elicited these structures, as shown by the responses of the francophone children tested in the same study, it is possible that the children deliberately avoided them because they found them too difficult.

The comparison of the findings of the present study with those of Bautier-Castaing suggests a certain degree of similarity in the development of learners' L2 grammars with regard to those grammatical features that were compared. Rosansky (1976) has raised some questions about the validity of morpheme acquisition orders based on cross-sectional data and on instrument-elicited production. Keeping these constraints in mind, the hierarchy of difficulty found in this study might provide a useful base for further research pertaining to the learning sequence of French grammatical features.

The most interesting pattern that emerges from the rank orders shown in Tables 27, 28 and 29 is that of gender-related classes. For all six groups the masculine forms of pronouns, articles and adjectives were produced with greater accuracy than the corresponding feminine forms. The question arises as to whether a similar consistency of pattern can be found amongst gender-related classes in other languages. The results presented in the following chapter will examine this question with regard to Hebrew.

CHAPTER V

PRESENTATION AND DISCUSSION OF HEBREW TEST RESULTS

In this chapter the results of the analysis of the Hebrew tests will be discussed. Wherever possible, these results will be compared informally to those obtained for French in the corresponding class. As in the case of French, the order of presentation will follow the order used in the discussion of the grammatical classes in chapter III, i.e. (1) pronoun, (2) verb, (3) article, (4) adjective, (5) preposition. In each case the results of the major class will be presented first followed by the results of every secondary class belonging to that major class. For each class, the results of the quantitative performance measured by the number of obligatory contexts, and of the qualitative performance measured by the percentage of errors, will be presented and discussed. Since Hebrew was not taught in the FF program, the results presented in this section pertain only to grades 1, 2 and 3 of the FH program. As noted in chapter III, the children tested in Hebrew were the same children who had been tested in French in the FH program. However, one boy in grade 3 did not complete the tests and was, therefore, eliminated. In order to have an equal number of children in all three grades, one child in grade 1 and one child in grade 2 were randomly selected and eliminated. The number of children whose oral production in Hebrew was analyzed was thus reduced to 18 at each grade level. As in the case of the francophone children, the analysis of the Israeli children's tests showed little variation in either the number of obligatory contexts or the percentage of errors. Furthermore, the percentage of errors was less than 10% in all the classes under study, consequently, here too, the analysis was limited to data provided by half the group, namely five boys and five girls. A summary of these results is presented in Appendix C.

Pronouns

In the major class of pronouns the comparison of the mean number of obligatory contexts provided in each of the three grades shows that all three means differ significantly from one another (Table 30A). The results also show that pronoun contexts were almost never provided in grade 1. Closer investigation of the children's oral production revealed that only one third of the children in that grade produced any such contexts. The increase in the number of pronoun contexts is, however, very rapid and in grade 3 the children provided only slightly fewer obligatory contexts than the Israeli children ($\bar{X} = 30.40$). This finding is surprising in view of the fact that grade 3 children in both the FF and the FH programs still produced markedly fewer contexts for French pronouns than the francophone children. Further comparison between the speech patterns produced by the children in the FH program and those produced by the Israeli children showed that the latter frequently omitted subject pronouns when use of these pronouns was not obligatory, e.g.,

Tester:		
	ma 'asta ha-yalda?	'What did the girl do?'
Israeli:		
	nixnesa la-xeder.	'Entered the room.'

whereas the children in the FH program left the subject in the sentence, either repeating the noun that was given in the question, or producing the corresponding pronoun. These findings suggest a reluctance on the part of the L2 learner to abandon the 'S + V' structure, though it is not possible to know whether this represents a transfer from his L1 or an intralingual transfer since the structure is also common in Hebrew.

Because of the small number of obligatory contexts for pronouns in grade 1, the percentage of errors was not calculated for this grade. The comparison of the other two grades shows a significant decrease in the proportion of errors from grade 2 to grade 3 (Table 30B), but, as in the case of the French pronouns, children in grade 3 have not yet mastered the pronoun system (according to the 10% error threshold criterion) and their performance differs markedly from that of the Israeli children (2% errors). Once again, the question arises as to how the errors are distributed among the different secondary classes of the pronoun.

Table 30

Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 30A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.78	16.83	28.22	.000

Table 30B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	38	25	.000

The Third Person Masculine Singular Subject Pronoun

The distribution of the third person masculine singular pronoun is similar to that of the major class of pronouns with regard to the number of obligatory contexts. The number of these contexts increases from grade 1 to grade 3 and all three means differ significantly from one another (Table 31A). Here the children in grade 1 provided no obligatory contexts at all, whereas the children in grade 3 produced approximately the same number of pronoun contexts as the Israeli children ($\bar{X} = 8.80$).

Since obligatory contexts for this class were not produced in grade 1, the comparison of the percentages of errors pertains only to grades 2 and 3. The results show no significant decrease in the proportion of errors between these two grades (Table 31B). It is of interest to note that, whereas in French the percentage of errors in the third person masculine subject pronoun is below the 10% threshold at all three grade levels in both the FF and the FH programs, in Hebrew the corresponding pronoun is not yet mastered according to this criterion. Closer examination of the data reveals that all the errors were caused by substitution of the feminine form for the required masculine form. This may be due to L1 interference since the Hebrew form for the third person feminine singular hi is phonetically ambiguous with the masculine form of the corresponding English pronoun 'he'. The Israeli children made no errors in this class.

The Third Person Feminine Singular Subject Pronoun

As in the case of the third person masculine singular subject pronouns, the number of obligatory contexts for the third person feminine singular subject pronoun increases from grade 1 to grade 3 and all three means differ significantly from one another (Table 32A). Once again the children in grade 1 provided no obligatory contexts for this form. Furthermore, the children in grade 3 produced more such contexts than the Israeli children ($\bar{X} = 5.30$).

Here again the comparison of the percentages of errors pertains only to grades 2 and 3. The results reported in

Table 31

The Third Person Masculine Singular Subject Pronoun

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 31A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.00	5.17	8.89	.000

Table 31B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	15	13	.737

Table 32

The Third Person Feminine Singular Subject Pronoun

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 32A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.00	3.67	6.17	.000

Table 32B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	50	30	.011

Table 32B show a significant decrease in the proportion of errors between these two grades. The informal comparison between the masculine and feminine subject pronouns indicates that the percentage of errors of the feminine subject pronoun is much higher than that of the masculine subject pronoun in both grade 2 and grade 3. This pattern is similar to that found for the percentages of errors of French masculine and feminine subject pronouns. Closer investigation of the errors produced in the third person feminine singular subject pronoun revealed that, as in the case of French, all the errors were caused by the substitution of the masculine form hu for the required feminine form hi. It should be noted that in French the overgeneralization of the third person masculine singular subject pronoun could be influenced by the greater frequency of this form in the children's linguistic input since both the third person masculine plural ils 'they' and the impersonal il 'it' are phonetically identical to the masculine singular form. In Hebrew these forms are, however, distinct lexical items with no phonetic resemblance: hu/hem/ze 'he/they/it'. There would thus seem to be less opportunity to adopt the masculine form as the predominant third person singular subject pronoun. The findings do, however, correspond to the overall findings noted for French gender-related classes, namely that masculine forms are mastered prior to feminine forms. As in the case of the third person masculine singular subject pronoun, the Israeli children made no errors in the third person feminine singular subject pronoun.

Third Person Plural Subject Pronouns

The pattern of development of the third person plural subject pronouns is similar to those of the third person masculine and third person feminine singular subject pronouns, i.e., no obligatory contexts for plural subject pronouns were provided in grade 1, whilst in grade 3 the mean number of these contexts is close to that produced by the Israeli children ($\bar{X} = 6.70$). Furthermore, the comparison of the mean number of obligatory contexts produced in each of the three grades shows that all three means differ significantly from one another (Table 33A). As noted in chapter III, both masculine and feminine plural subject pronouns were included in this secondary class.

The percentage of errors pertains again only to the two higher grades. The results show a significant decrease from grade 2 to grade 3 (Table 33B). An informal comparison with the singular subject pronouns shows that the percentage of errors of the plural subject pronouns in grades 2 and 3 is much lower than that of the feminine subject pronouns. These findings suggest that number distinctions may be learned prior to gender distinctions even when gender is semantically based as was the case for all the subject pronouns. It is of interest to note that only 15% of all the obligatory contexts required a feminine plural form, yet two thirds of the errors in the plural pronouns pertain to the feminine plural form. Furthermore, there is a qualitative difference between errors in the masculine plural form and errors in the feminine plural form. Errors in the masculine pronoun were caused by substitution of the masculine singular form hu for the required plural form hem, whereas errors in the feminine pronoun were caused by the substitution of the masculine plural form hem for the required feminine form hen. These errors further support the notion that number distinctions may be mastered prior to gender distinctions. The Israeli children, similarly, substituted the masculine form hem for the feminine form hen in all the deviant forms they produced in this class (8% errors). The relatively high percentage of errors produced by the Israeli children in this class suggests that these pronouns may be undergoing a process of neutralization whereby a more frequently used form becomes the dominant form and the less frequently used form becomes neutralized (Greenberg, 1966). If this assumption is correct, L2 learner difficulties pertaining to this class can be attributed to an intralingual source rather than to the fact that the learner's L1 does not have a gender distinction in its plural pronouns.

Table 33

Third Person Plural Subject Pronouns

Mean Number of Obligatory Contexts and Percentage of
Errors According to Grade in the FH Hebrew Program

Table 33A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.00	3.11	6.33	.000

Table 33B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	33	15	.010

Object Pronouns

The results pertaining to the production of the object pronouns (aside from pronouns in possessive and attributive constructions, which were classified separately in this study) show that the children in grades 1 and 2 did not provide any obligatory contexts for such pronouns. Furthermore, even in grade 3 the number of these contexts (Table 34A) is markedly lower than that provided by the Israeli children ($\bar{X} = 5.00$). The informal comparison of the number of obligatory contexts for the Hebrew object pronouns to that for the French object pronouns at all three grade levels suggests that this aspect of the pronominal system seems to emerge more slowly in Hebrew than in French.

Since object pronouns were produced only in grade 3, no statistical analysis pertaining to the percentage of errors was possible (Table 34B). Furthermore, the percentage of errors produced in grade 3 must be interpreted cautiously because of the small number of obligatory contexts provided. As in the case of the French object pronouns, most of the errors were omission errors. It should be noted that the Israeli children produced only 2% errors. All of the errors produced by the Israeli children were caused by incorrect gender agreement in plural forms.

Pronouns in Possessive and Attributive Constructions

The development of the pronouns in possessive and attributive constructions differs from that of the other secondary classes of the pronoun in that there is no significant difference between the mean number of obligatory contexts provided in grade 2 and that provided in grade 3 (Table 35A). Furthermore, the mean number of obligatory contexts in each of these grades does not differ markedly from that produced by the Israeli children ($\bar{X} = 5.20$). Possessive and attributive constructions were the only contexts in which the grade 1 children produced any pronouns. The mean number of these contexts in grade 1 is, however, significantly lower than those in grades 2 and 3.

Table 34

Object Pronouns

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 34A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.00	0.00	1.33	.000

Table 34B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	--	38	--

Table 35

Pronouns in Possessive and Attributive Constructions

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 35A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.78	4.89	5.50	.000

Table 35B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	55	48	.496

The comparison of the percentages of errors pertains only to grades 2 and 3. The results show no significant differences between these two grades (Table 35B). Closer investigation of the deviant forms revealed two types of errors. Most of the errors were caused by the children's attempts to formulate their sentences according to the SVO pattern with the pronoun in the nominative case, whereas these particular sentence types require the corresponding pronoun to be in the dative case, e.g.,

*hu yeš kesef.
(yeš lo kesef.) 'He has money.'

Such a construction parallels the corresponding English structure and suggests transfer from L1. This hypothesis is further supported by the children's attempts to insert the verb form *haya* 'was' in the attributive constructions where no verb is required in the present tense, e.g.,

*hu haya kar 'He was cold.'
(kar lo.) 'He is cold.'

The other type of error was the substitution of the first person singular pronoun *li* for the third person singular pronoun *lo* (both in the dative case). Such errors may be caused by the children's greater familiarity with first person pronouns since they relate more closely to their personal experience. On the other hand, since errors in the person of the pronoun never occurred in any other pronoun class, it is unlikely that the error was caused by the failure to distinguish between first and third person pronouns. It is, therefore, probable that the children produced these constructions as prefabricated patterns substituting the entire construction *yeš li* 'I have' for *yeš lo* 'he has'. The Israeli children made no errors in this class.

To summarize, the development of the Hebrew pronoun in the immersion students' L2 grammar seems to emerge only in grade 2, at least with reference to those pronouns tested in the present study. The near total absence of pronouns in grade 1 suggests that the children in this grade may not be avoiding pronouns because of the complexity of referential association, but because they have not yet mastered a sufficient variety of pronominal forms in order to attempt pronominalization. With regard to the percentage of errors, there is no consistent pattern of improvement and none of the forms produced in the secondary classes examined in this study are mastered according to the 10% error threshold criterion.

Verbs

In the major class of verbs the increase in the mean number of obligatory contexts from grade 1 to grade 3 is such that all three means differ significantly from one another (Table 36A). The comparison between grade 1 and grade 3 indicates that the children in grade 3 provided four times as many obligatory contexts as the children in grade 1. Nevertheless, the children in grade 3 produced markedly fewer such contexts than the Israeli children ($\overline{X} = 59.40$). It is of interest to note that in all three grades the children produced fewer verb contexts in Hebrew than in French (Table 9A). Similarly, the number of Hebrew verb contexts provided by the Israeli children is smaller than the number of French verb contexts provided by the francophone children, though this difference is less pronounced. These findings suggest that the relative small number of obligatory contexts produced in Hebrew by the immersion students is partially due to the structure of the language itself and partially to the children's lack of the appropriate lexical terms. Closer investigation of the children's oral production in French and in Hebrew revealed that in French the children would extend the meaning of a verb they were familiar with to contexts for which they did not have the appropriate verb in their vocabulary, e.g.,

Francophone:

Ils arrosent la maison pour éteindre le feu.	'They spray the house with water to put the fire out.'

Immers. stud.:

*Ils met de l'eau sur la maison pour le feu ne peut pas brûler la maison.	'They put water on the house so the fire can't burn the house.'

Table 36

Verbs

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 36A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
11.11	35.89	46.67	.000

Table 36B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
38	36	37	.869

whereas in Hebrew the children would either substitute the corresponding English verb for the Hebrew one or leave the sentence incomplete, e.g.,

*hu lakax mayim ve...   'He took water and...'

Such strategies were also used in French by some children in both the FF and the FH programs. There were, however, few such cases and they occurred mainly in grade 1, whereas in Hebrew these strategies were used by many of the children in all three grades.

These findings suggest that strategies such as the ones noted above for French require a certain flexibility in the use of language which most of the children in the FH program had not yet developed in Hebrew.

In contrast to the significant increase in the number of obligatory contexts, there is no significant difference in the percentage of errors among the three grades (Table 36B). Furthermore, the performance of the children in all three grades differs markedly from that of the Israeli children (2% errors). The difficulty in mastering the verb forms may be due to the fact that the Hebrew verb system is highly inflected and the variety of paradigms to which the learner is exposed may impede the learner's ability to progressively master new forms. The question then arises as to whether the different features of the Hebrew verb system are equally difficult to master.

As discussed in chapter III, both the stem and the inflectional suffix are variable in the Hebrew verb. The stem varies according to pattern (binyan), mood and tense. The inflectional suffix varies according to person, gender and number. In order to assess the children's mastery of gender and number in Hebrew verbs, a distinction was made in the error analysis between errors which pertained only to the inflectional suffixes of the present and past tenses and errors which pertained to the stem forms of these tenses. The errors discussed in each of the secondary classes related to gender and number of the present and past tenses pertain to the errors in the inflectional suffixes. The errors in the stem of the verb will be discussed separately.

Third Person Masculine Singular Present Tense

The number of obligatory contexts for the third person masculine singular present tense increases rapidly from grade 1 to grade 2 so that the mean in grade 1 is significantly lower than those in grades 2 and 3 (Table 37A). In spite of this increase, the children in grade 3 provided slightly less than half as many obligatory contexts as the Israeli children ($\bar{X} = 12.10$). Here again, lack of the appropriate lexical items in the immersion students' vocabulary seems to be the reason for this difference. Set II of the picture test (see Appendix A) provides an example of the difference in the children's oral production of French and Hebrew verbs. This test necessitates the use of three verbs in the third person (masculine) singular present tense: 'get up', 'washes himself', 'brushes his teeth'. In French these verbs were produced by the majority of the children in all three grades in both the FF and the FH programs, whereas in Hebrew the first verb was frequently the only verb produced.

The comparison of the percentages of errors pertaining to the inflectional suffixes shows a significant difference between grade 1 and the other two grades (Table 37B). Furthermore, in grades 2 and 3 this aspect of the verb can be considered mastered since the proportion of errors in those grades is below the 10% threshold. The low percentage of errors in this class is not surprising as there is no inflectional suffix in the third person masculine singular of Hebrew verbs. It should be noted that all the deviant forms were caused by the substitution of the third person feminine form for the required masculine form. The Israeli children made no errors in this class.

Third Person Feminine Singular Present Tense

The distribution of the third person feminine singular present tense verbs is similar to that of the third person masculine singular present tense verbs with respect to the number of obligatory contexts. The mean number of these contexts in grade 1 differs significantly from those in grades 2

Table 37

Third Person Masculine Singular Present Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 37A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
2.28	5.00	5.94	.000

Table 37B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
24	6	6	.015

and 3. There is thus a significant increase between grade 1 and grade 2, but not between grade 2 and grade 3 (Table 38A). Furthermore, the children in grade 3 provided approximately as many obligatory contexts for this verb form as the Israeli children ($\bar{X} = 6.00$). This finding is surprising in view of the fact that the Israeli children produced markedly more masculine verb contexts than the grade 3 immersion students. Closer investigation of the verbs produced by both groups revealed that, because the tests elicited more masculine than feminine verbs, the lexical range of the feminine verbs was not as broad as that of the masculine verbs. Furthermore, the grade 3 immersion students produced a smaller variety of verbs than the Israeli children. This was especially noticeable in the feminine verbs where a general verb such as 'to say' could be substituted for a more specific one such as 'to ask'.

The most striking result pertaining to the errors produced in the third person feminine singular present tense verbs is the finding that the percentage of errors increases steadily from grade 1 to grade 3. This increase is significant between grade 1 and the other two grades (Table 38B). Most of the errors were caused by the substitution of the uninflected masculine form for the required feminine form. The omission of inflectional suffixes in the speech patterns of L2 learners has been frequently noted by researchers, especially with reference to the third person singular present tense in English verbs (Dušková, 1969; Scott and Tucker, 1974; etc.). The question arises as to why the children in grades 2 and 3 produced proportionally more errors than children in grade 1. As in the case of certain other structures discussed in this study, it is possible that the relatively small number of verbs produced by the children in grade 1 had been learned as prefabricated patterns, whereas in grades 2 and 3 the verb was analyzed into its components and a strategy of simplification was then used by the children in these grades whereby only the stem, which carries the semantic content of the verb, is retained. The Israeli children also produced a few errors of this type (2%).

Table 38

Third Person Feminine Singular Present Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 38A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
3.44	5.39	6.06	.001

Table 38B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
35	59	62	.003

Third Person Plural Present Tense

The pattern of development of the third person plural present tense verbs follows that of the singular present tense verbs with regard to the number of obligatory contexts. The number of these contexts increases across the three grades and the mean in grade 1 is significantly smaller than those in grades 2 and 3 (Table 39A). Furthermore, as in the case of the masculine singular verbs, the children in grade 3 still provided markedly fewer verb contexts in this class than the Israeli children ($\bar{X} = 11.90$).

In the percentage of errors there is a decrease from grade 1 to grade 2 followed by an increase from grade 2 to grade 3. These differences are, however, not significant (Table 39B). As discussed in chapter III, masculine and feminine plural verbs were analyzed as one class. It is, however, of interest to note that, whereas all the errors in the third person masculine plural consisted of the substitution of the uninflected masculine singular form for the required plural form, some of the errors in the third person feminine plural form consisted of the substitution of the third person masculine plural form for the required feminine form. This type of error is similar to that noted for the feminine plural pronouns, suggesting that here again the learner has mastered the singular/plural distinction prior to the masculine/feminine distinction. It is noteworthy that all the errors produced in this class by the Israeli children were of the latter type. The Israeli children, however, produced such errors only in contexts where the subject of the verb was a pronoun and not a noun (1% errors).

Stem Form of the Present Tense

There is a slight decrease across the grades in the percentage of errors in the stem form of the present tense verbs, although this decrease is not significant (Table 40). It should, however, be noted that in grade 3 the percentage of errors reaches down to the 10% threshold and this form can, therefore, be considered mastered at that grade level. Closer

Table 39

Third Person Plural Present Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 39A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
1.83	5.28	5.94	.000

Table 39B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
43	34	44	.318

Table 40

Percentage of Errors in the Stem Form of the Present Tense According to Grade in the FH Hebrew Program

Grade 1	Grade 2	Grade 3	p
14	13	10	.293

examination of the deviant forms revealed three types of errors. Furthermore, the type of error produced seemed to depend on the particular verb used, e.g., the imperative form kum 'get up' was the only form substituted for the required present tense form kam 'he gets up' whereas the past tense forms 'amar (masc.) and 'amra (fem.) 'said' were substituted for the required present tense forms 'omer (masc.) and 'omeret (fem.) 'says'. Finally, the infinitive forms lalexet 'to go' and lakaxat 'to take' were frequently substituted for the present tense forms of these verbs. This was particularly true when the required verb was a feminine form or a plural (masculine or feminine) form. Whilst this last type of error may indicate once again the use of a strategy of simplification whereby an uninflected, invariant form is substituted for an inflected one, this is not the case for the first two types of errors since both the imperative and the past tense are inflected for person, gender and number. Here frequency of occurrence of these forms in the children's linguistic input may account for the errors. Thus it is possible that the children hear more frequently the imperative forms kum/kumi 'get up!' than the present tense forms kam/kama. Consequently, these forms may be the only forms of this verb retained by some of the children. The Israeli children produced no errors in this class.

Third Person Masculine Singular Past Tense

The mean number of obligatory contexts for the third person masculine singular past tense verbs increases rapidly from grade 1 to grade 3 and all three means differ significantly from one another (Table 41A). It is of interest to note that the children in grade 1 provided almost no contexts for this verb form. Furthermore, in grade 3 the children still produced fewer such contexts than the Israeli children ($\bar{X} = 8.30$).

The percentage of errors was calculated only for grades 2 and 3. The most noteworthy finding pertaining to these percentages is that the children in both grades produced only 4% errors (Table 41B). Thus, as in the case of the present tense verbs,

Table 41

Third Person Masculine Singular Past Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 41A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.56	4.50	6.33	.000

Table 41B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	4	4	.983

the third person masculine singular past tense form can be considered mastered in these two grades. It should, however, be recalled that these percentages pertain to the inflectional suffix of the verb and that the third person masculine singular past tense is not inflected. This form represents, therefore, the simplest past tense form. All the errors were caused by the substitution of the feminine singular form for the required masculine form. The absence of overgeneralization of plural forms to contexts requiring a singular form in the past tense further supports the notion that number distinctions may be mastered prior to gender distinctions. The Israeli children produced no errors in this class.

Third Person Feminine Singular Past Tense

As in the case of the third person masculine singular, the increase in the number of obligatory contexts from grade 1 to grade 3 is such that all three means differ significantly from one another (Table 42A). Similarly, the children in grade 3 still provided fewer contexts of this form than the Israeli children ($\bar{X} = 7.40$) though this difference is very small. It should be noted that in grade 1 only one child produced any obligatory context for the third person feminine singular past tense.

Here again the percentage of errors was calculated only for grades 2 and 3. In both grades the proportion of errors is relatively high and although there is a decrease in the percentage of errors from grade 2 to grade 3, this decrease is not significant (Table 42B). Closer examination of the forms revealed that all errors were caused by the substitution of the uninflected masculine form for the required feminine form. This type of error is similar to that noted for the feminine present tense verbs and the informal comparison between these two classes shows that the proportion of errors produced in grade 3 is approximately the same in the present and past tense verbs. The Israeli children made 1% errors.

Table 42

Third Person Feminine Singular Past Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 42A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.11	4.11	6.94	.000

Table 42B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	74	66	.300

Third Person Plural Past Tense

The first thing to note about the third person plural past tense verbs is that no children in grade 1 and only very few children in grade 2 provided these contexts. Consequently, the mean number of obligatory contexts in grade 3 differs significantly from those in grades 1 and 2 (Table 43A). Furthermore, the number of these contexts in grade 3 is still very small. This may be partially due to the lack of appropriate contexts in the tests themselves since the Israeli children similarly produced only a small number of contexts for this form ($\bar{X} = 3.00$).

Because of the small number of obligatory contexts in grades 1 and 2, the percentage of errors was only calculated for grade 3 (Table 43B). This percentage is relatively high in spite of the fact that there are no gender distinctions in the third person plural past tense. Closer examination of the deviant forms revealed that all the errors were caused by substitution of the uninflected third person masculine singular form for the required third person plural form. The Israeli children made no errors in this class.

Stem Form of the Past Tense

The percentage of errors in the stem form of the past tense was calculated only for grades 2 and 3. There is no significant difference between the percentages in these two grades (Table 44). However, contrary to the development of the stem form of the present tense, the proportion of errors remains above the 10% threshold and so this form cannot be considered mastered. Closer examination of the deviant forms revealed that the majority of errors were caused by the substitution of a present tense stem for the corresponding past tense stem form. These errors are similar to the errors in the choice of tense noted in the French *passé composé*. Two other types of errors are noteworthy even though they did not occur frequently. Some of the deviant forms consisted of a compound structure involving the use of the copula *haya* 'was' + a present tense form, e.g.,

Table 43

Third Person Plural Past Tense

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 43A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.00	0.72	2.06	.001

Table 43B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
--	--	74	--

Table 44

Percentage of Errors in the Stem Form of the Past Tense According to Grade in the FH Hebrew Program

Grade 1	Grade 2	Grade 3	p
--	13	15	.663

*hi haya 'oxel 'et ha-'uga.	
(hi 'axla 'et ha-'uga.)	'She ate (was eating) the cake.'

Although this form exists in Hebrew, its use is not appropriate here, just as the use of the past continuous in English would not have been correct since the context referred to an action which had been completed (see Appendix A, set I). It is possible that the children used the copula haya simply as a past tense indicator. On the other hand, the finding that a copula was also inserted in front of present tense verbs in French, where such a form does not exist, suggests that transfer from L1 may influence the choice of this form. The other type of error involved an incorrect stem pattern (binyan), e.g.,

*hem saxak	
(hem sixku.)	'They played.'

It should be noted that the inflectional suffix is also missing in the deviant form shown above. This error was, however, classified separately. Although the Israeli children tested in this study did not make any errors in the stem pattern (binyan), such errors have been noted in the speech of young native Hebrew speakers (Bar-Adon, 1959; Berman, 1979). The finding that this type of error emerged only in grade 3 in the FH program suggests that learners need a considerable amount of experience with L2 structures before such errors are produced. It is also of interest to note that errors in the stem pattern (binyan) did not occur in the present tense, supporting the notion that the present tense stem forms can be considered mastered in grade 3, whereas the stem form of the past tense is still in the process of being learned.

Infinitive Forms

As in French, the development of the infinitive is very slow. The children in grades 1 and 2 provided almost no obligatory contexts for such forms, consequently the mean number of these contexts in grade 3 differs significantly from those in grades 1 and 2 (Table 45A). However, the children in grade 3 still produced markedly fewer obligatory contexts for the

Table 45

Infinitive Forms

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 45A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
0.22	0.83	2.78	.000

Table 45B Percentage of Errors

Grade 1	Grade 2	Grade 23	p
--	--	24	--

infinitive than the Israeli children ($\bar{X} = 4.70$). In grades 1 and 2 units such as 'he/she wants + V' seemed to be avoided even more frequently than in French. Sometimes V was replaced by a noun phrase, yielding a sentence which is grammatically correct without providing the infinitive, e.g.,

hi roca 'et ha-'uga. 'She wants the cake.'

Because of the small number of obligatory contexts in grades 1 and 2, the percentage of errors was only calculated for grade 3 (Table 45B). Errors were caused by the substitution of the uninflected masculine singular present tense form for the required infinitive. These findings suggest that in Hebrew the masculine singular present tense form seems to be the form the children are most familiar with. The Israeli children made no errors in this class.

Impersonals

The class of impersonals includes both *yeš* 'there is/there are' and *'eyn* 'there isnt't/there aren't'. As noted in chapter III, these forms correspond to certain aspects of 'have' and 'be' when used as regular verbs. The mean number of obligatory contexts increases sharply between grade 1 and grade 2, consequently the mean in grade 1 is significantly smaller than those in grades 2 and 3 (Table 46A). It should be noted that the children in grades 2 and 3 provided approximately twice as many contexts for *yeš* and *'eyn* as the Israeli children ($\bar{X} = 5.20$). This was partly due to the fact that the children is these grades would frequently point to a picture and enumerate the things they saw preceding each noun with *yeš*, e.g.,

yeš šeleg ve-yeš bayt ve-yeš yeladim.	'There is snow and there is a house and there are children.'

whereas the Israeli children would use a more narrative style in the description of the pictures, e.g.,

'ani ro'e harbe šeleg ve-bayt ve-yeladim mesaxakim.	'I see a lot of snow and a house and children playing.'

The immersion students sometimes also used the structure *yeš* + N in contexts where the Israeli children used a regular verb, e.g.,

Table 46

Impersonals

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 46A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
2.67	10.06	10.61	.000

Table 46B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
26	11	5	.000

Immers. stud.:
*hi yeš 'oxel.
(yeš la 'oxel.)   'She has food.'
Israeli:
hi 'oxelet.   'She eats.'

These findings suggest that the immersion students may be simplifying their L2 grammar by using an invariant verb form, thus avoiding the use of the inflected forms.

The percentage of errors decreases significantly from grade 1 to grade 3, but there is no significant decrease in the proportion of errors between adjacent grades (Table 46B). In grade 3, the invariant forms can be considered mastered since the percentage of errors is below the 10% threshold. Closer examination of the deviant forms revealed that the majority of errors in this class occurred when the children produced a negative construction, e.g.,

*ha-yeled lo yeš kesef.
(la-yeled 'eyn kesef.)   'The boy has no money.'

The structure of this deviant form suggests that the children used the invariant form *yeš* as a regular verb preceded by the negative particle *lo*, thus producing the regular negative construction of inflected verbs, e.g.,

ha-yeled lo ba.   'The boy didn't/doesn't come.'

Errors in the production of the affirmative constructions were infrequent and occurred only in grade 1. The Israeli children made no errors in this class.

To summarize, the development of the Hebrew verb in the immersion students' grammar is characterized by a significant increase in the number of obligatory contexts from grade 1 to grade 3 in all the verb classes examined in this study. The results pertaining to the percentages of errors show that the third person masculine singular present tense, the third person masculine singular past tense, the stem forms of the present tense and the impersonals are the only classes mastered. Errors in the inflectional suffixes were more frequent than errors in the stem of the verb. Furthermore, the percentage of errors produced in the third person feminine singular was higher than that produced in the third person masculine singular in both the present and the past tense.

Articles

The increase in the number of obligatory article contexts is most pronounced from grade 1 to grade 2, consequently there is a significant difference between the mean number of these contexts in grade 1 and those in the other two grades (Table 47A). Two aspects pertaining to the production of the obligatory contexts for the article are noteworthy. Firstly, when the mean number of article contexts is compared to the mean number of obligatory contexts for each of the four other major classes analyzed in Hebrew, it becomes apparent that the children provided more such contexts in this class than in any of the other classes. Secondly, when the number of obligatory contexts produced in grades 2 and 3 is compared to that of the Israeli children ($\bar{X} = 33.70$), it becomes apparent that the immersion students in these grades provided more article contexts than the Israeli children. The preponderance of articles, and consequently of nouns, in the oral production of the immersion students can be attributed to two main factors. Firstly, as in the case of French, the immersion students pronominalized nouns much less frequently than the native speakers. Secondly, the immersion students frequently only enumerated items they saw in the test pictures. This type of response was most pronounced in grade 1 where noun phrases were frequently the only structures produced, whereas in grades 2 and 3 the children attempted to use sentence structures even when enumerating a list of items, as noted with reference to the impersonal verb *yeš*.

The percentage of errors decreases from grade 1 to grade 2, but this decrease is followed by an increase from grade 2 to grade 3. Both these differences are significant (Table 47B). This pattern of development is very irregular and closer examination of the deviant forms produced in the two secondary classes of the article is needed to provide a possible explanation

Table 47

Articles

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 47A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
22.17	42.50	47.89	.000

Table 47B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
8	4	9	.000

for this distribution. It should be noted that, although the differences are significant, the proportion of errors in all three grades is below the 10% threshold and the article can therefore be considered mastered.

Full Form of the Article

The distribution of the obligatory contexts for the full form of the article across the three grades is similar to that of the major class of articles, i.e., there is an increase of these contexts from grade 1 to grade 3 and the mean number of obligatory contexts in grade 1 differs significantly from those in grades 2 and 3 (Table 48A). Furthermore, the children in these two grades provided here also more article contexts than the Israeli children ($\bar{X} = 24.90$).

As in the case of the major class of articles, the percentage of errors decreases between grade 1 and grade 2 and then increases between grade 2 and grade 3. Both these differences are significant (Table 48B). Here again, the articles produced in each grade can be considered mastered. This finding is not surprising since, as noted in chapter III, in Hebrew the article is invariant with regard to gender and number. Furthermore, only the definite article is overtly expressed. Omission, intrusion and misplacement constitute, therefore, the only types of errors produced. Closer examination of the units containing the article revealed an interesting pattern of development across the three grades. In grade 1, the majority of errors were due to the omission of the article in front of both simple and compound nouns. A small number of errors were due to the omission of the article when that article had to be repeated in front of a demonstrative marker or in front of an adjective. In grade 2, omission errors continued to occur in front of compound nouns, but not in front of simple nouns, nor in front of demonstrative markers and adjectives. Constructions containing demonstrative markers and adjectives were, however, less frequently produced in grade 2 than in grade 1, so there were proportionally fewer opportunities for errors in these units. In grade 3, omission

Table 48

Full Form of the Article

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 48A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
16.55	32.39	37.17	.000

Table 48B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
8	2	7	.000

errors reappeared in front of simple nouns and in front of the, now more frequently used, demonstrative markers. Omission errors also continued in front of compound nouns. Moreover, the article was now sometimes misplaced within the structure of the compound noun, e.g.,

*'ima 'osa 'uga bišvil
ha-yom-huledet.
('ima 'osa 'uga bišvil
yom-ha-huledet.) 'Mother bakes a cake for
the birthday.'

This type of error was occasionally also produced by the Israeli children (1% errors). The children in grade 3 also made some intrusion errors. In most cases the added article occurred in a noun phrase which was not marked for definiteness, e.g.,

*ha-'iparon 'exad
('iparon 'exad) 'a pencil'

These findings suggest that the children in grades 1 and 2 may have frequently produced the unit containing an article as a prefabricated pattern, whereas the children in grade 3 seem to have identified the article as a discrete lexical item and may, therefore, have attempted to use it productively.

Contracted Forms of the Article

As in the case of the other classes of the article, the increase in the number of obligatory contexts for the contracted forms is such that the mean in grade 1 is significantly lower than those in the other two grades (Table 49A) and the children in grades 2 and 3 again produced more contracted forms than the Israeli children ($\bar{X} = 8.80$).

The percentage of errors produced in this class also follows the same pattern as those noted for the other classes of the article. The difference in the percentages between the three grades fails, however, to reach the .05 level of significance (Table 49B). It is of interest to note that the contracted forms of the article seem to be mastered in grades 1 and 2, but in grade 3 the proportion of errors rises above the 10% threshold. These findings seem puzzling, especially in view of the fact that the Israeli children made no errors in this

Table 49

Contracted Forms of the Article

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 49A Mean Number of Obligatory Contexts

	Grade 1	Grade 2	Grade 3	p
	5.61	10.11	10.72	.001

Table 49B Percentage of Errors

	Grade 1	Grade 2	Grade 3	p
	10	9	17	.051

class. Closer examination of the deviant forms showed that the only type of error produced in grade 1 was the omission of the article. This type of error continued in grades 2 and 3. Furthermore, in grade 2 and especially in grade 3, a new type of error appeared, namely failure to contract the preposition and the definite article. This type of error is similar to that noted for the contracted forms of the French article and suggests that in Hebrew the structure 'Prep.+ Art.' may be initially produced as a prefabricated pattern, whereas at later stages it is analyzed into its components. Such a pattern of development has not been noted for French. Furthermore, the percentages of errors were proportionally much higher in French than in Hebrew at all three grade levels. Thus, whilst the type of error is similar in both languages, the relative degree of difficulty of this form is different in the two languages.

To summarize, the Hebrew article system does not seem to present major difficulties for the L2 learner. The errors found in the children's oral production at the different grade levels suggest a pattern of development which parallels certain aspects of L1 acquisition. There seems to be an initial stage when prefabricated patterns and omissions predominate and a later stage when the prefabricated pattern is analyzed into its components with consequent overextension of the article to contexts which do not require it. This latter type of error may be due to the influence of English or French, both of which have an indefinite article whereas Hebrew has none. This aspect of the development of the Hebrew article suggests a possible process of complexification in the learner's L2 grammar.

Adjectives

The comparison between the mean number of adjective contexts provided in each of the three grades shows that the number of these contexts increases from grade 1 to grade 3 and that all three means differ significantly from one another (Table 50A).

Table 50

Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 50A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
5.56	7.72	9.78	.000

Table 50B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
26	40	35	.109

However, the children in grade 3 still provided fewer such contexts than the Israeli children ($\bar{X} = 11.58$). The informal comparison between the number of French and Hebrew adjective contexts provided shows that fewer such contexts were produced in Hebrew than in French by both the immersion students and the respective native speakers. This is partly due to the fact that plural adjectives were not included in Hebrew. Furthermore, in French the use of the adjective petit/petite 'small' in front of the nouns garçon/fille 'boy/girl' is almost automatic, whereas in Hebrew the use of the same adjective in this context is less frequent. Closer investigation of the adjectives produced in Hebrew revealed that the adjectives gadol 'big' and katan 'small' were frequently substituted for the adjectives šamen 'fat' and raze 'thin'. In some cases, where the tests elicited contrasting adjectives other than gadol and katan, only one member of the contrasting pair was produced and the other concept was expressed through negation of the first member, e.g.,

> *iša 'axat šamen ve-'iša
> 'axat lo šamen.
>
> ('iša 'axat šmena ve-'iša 'axat lo šmena.) 'One woman is fat and one woman is not fat.'

These strategies are similar to those noted for the production of the corresponding adjectives in French. It is of interest to note that, in the case of French, both the immersion students and the francophone children frequently substituted grand 'big' and petit 'little' for gros 'fat' and maigre 'thin'. By contrast, the Israeli children always produced at least the unmarked member of this pair. There is no easy explanation as to why the Israeli children should react differently to the pictures than the francophone children. It is possible that because the adjectives grand and petit are so frequently used in French, the children may tend to overextend their meaning. Alternatively, it is possible that in an environment where there is less exposure to television, as is the case for the Israeli children, there is more emphasis on story books and on picture description.

There is no significant difference among the percentages of errors produced in the three grades (Table 50B). The distribution of the percentages is, however, irregular, i.e., the proportion of errors increases from grade 1 to grade 2 and then decreases from grade 2 to grade 3. This pattern is similar to that observed for the French adjectives (Table 22B). The increase from grade 1 to grade 2 suggests once again that the learner changes his hypotheses about the L2 grammar as his knowledge of the target language increases. Closer examination of the deviant forms revealed errors in gender agreement, as well as errors in the stem of the adjective if the latter was derived from a frequently used verb. Thus, in the case of patu'ax 'open' and sagur 'shut', the infinitive or the masculine singular present tense form of the corresponding verb was frequently substituted for the adjectival form. Since the children in grade 1 produced only a small variety of adjectives (mainly gadol, katan and some colours), these errors did not occur in grade 1. Furthermore, as will be shown in the analysis of the secondary classes of the adjective, gender agreement seems to become progressively more confusing for the children as they try to formulate hypotheses about the inflectional suffix. No errors were found in the position of the adjective in relation to the other elements in the noun phrase, in spite of the fact that in Hebrew the adjective follows the noun, thus contrasting with the corresponding English structure. It should, however, be noted that the children used this construction infrequenlty since most of the adjectives produced were elicited through questions and were, therefore, part of the verb phrase. The Israeli children produced only 1% errors in this class.

Masculine Singular Adjectives

The number of masculine singular adjective contexts increases from grade 1 to grade 3. This increase is most pronounced between grade 2 and grade 3, consequently the mean number of obligatory contexts in grade 3 differs significantly from those in grades 1 and 2 (Table 51A). Furthermore, the children in grade 3 produced slightly more such contexts than the Israeli children ($\bar{X} \doteq 6.10$).

As in the case of the major class of adjectives, there is no significant difference in the percentage of errors produced in the three grades (Table 51B). It should, however, be noted that the percentage increases from grade 1 to grade 3 and that, whereas the proportion of errors is below the 10% threshold in grade 1, this is not the case in grades 2 and 3. Closer investigation of the deviant forms revealed that all the errors were caused by the substitution of the feminine form for the required masculine form. This type of error is not easily explained since the masculine form is the uninflected one and should, therefore, be the form which is predominantly retained. It is possible that the children in grade 1 were unaware of the gender differentiation in adjectives and, therefore, retained only one form for a given adjective, whereas the children in grades 2 and 3 differentiated between masculine and feminine forms, but had not yet mastered the selectional rules which assign each form to its specific context. Closer examination of the adjectives produced by the children in grades 2 and 3 showed that children in these grades frequently used both the masculine and the feminine form of the same adjective even when they referred to the same masculine noun, e.g.,

*ze 'iparon gadol ve-ze
'iparon lo gedola.

(ze 'iparon gadol ve-ze 'iparon lo gadol.)	'This is a big pencil and this is not a big pencil.'

The Israeli children made no errors in this class.

Feminine Singular Adjectives

The distribution of the feminine singular adjectives differs from that of the masculine singular adjectives in that there is a rapid increase in the mean number of obligatory contexts between grade 1 and grade 2; consequently, the mean number of these contexts in grade 1 differs significantly from those in grades 2 and 3 (Table 52A). Furthermore, the children

Table 51

Masculine Singular Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 51A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
3.72	4.61	6.33	.000

Table 51B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
4	12	15	.099

Table 52

Feminine Singular Adjectives

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 52A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
1.83	3.11	3.44	.002

Table 52B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
71	80	73	.516

in grade 3 still produced fewer feminine adjective contexts than the Israeli children ($\bar{X} = 5.40$). Here again the children frequently did not seem to know the appropriate lexical items for the contrasting pairs *šamen*/*raze* 'fat/thin' and *patu'ax*/*sagur* 'open/shut' which were only elicited in the feminine. This was particularly noticeable in grade 1 where the children frequently did not even substitute the adjectives *gadol*/*katan* 'big/small' for *šamen*/*raze* 'fat/thin'. Furthermore, not all the children used the second strategy noted above with regard to the production of contrasting pairs of adjectives. Thus, when referring to the items to which the above adjectives referred, some children would describe only one of the items, leaving the statement about the second item incomplete. Hence, as in the case of Hebrew verbs, there seems to be a certain lack of flexibility in the use of even those adjectives which the children did produce.

The pattern of development of the feminine adjectives is irregular and the children in grade 2 produced proportionally more errors than the children in grade 1. The difference between the percentages is, however, not significant among the three grades (Table 52B). When these percentages are compared to those of the masculine singular adjectives, a pattern similar to that noted in French is revealed, namely that the proportion of errors produced in the feminine adjectives is much higher than that produced in the masculine adjectives at all three grade levels. The majority of errors were caused by the substitution of the uninflected masculine form for the required feminine form. The other errors pertained to the stem form of the adjectives *patu'ax* 'open' and *sagur* 'shut' and have been discussed above. It is of interest to note that, as in French, the children frequently avoided gender agreement by using the pronoun *ze* 'it', e.g.,

po ze sagur ve-po ze lo sagur.	'Here it is open and here it is not.'

By contrast the Israeli children always produced the noun or pronoun to which the adjective referred. As in the other gender-related classes, the Israeli children made almost no errors in this class (2%).

To summarize, the development of the adjectival system in Hebrew shows certain similarities to that noted for French with respect to both strategies of communication and correctness of usage. The two most noteworthy findings pertaining to the production of the adjectives are that (1) gender errors follow the same pattern as that noted for the gender-related classes of the subject pronouns and the verbs, i.e., the percentage of errors produced in the masculine adjectives is markedly lower than that produced in the feminine adjectives; (2) there is no significant decrease in the percentage of errors in either the masculine or the feminine adjectives.

Prepositions

As in the case of French, the obligatory preposition contexts include those instances where the children inserted an unnecessary preposition, thus creating an assumed preposition context. The number of these contexts increases from grade 1 to grade 3 and all three means differ significantly from one another (Table 53A). Furthermore, in grade 3 the mean number of preposition contexts exceeds that provided by the Israeli children ($\bar{X} = 28.70$). This is partially due to the immersion students' infrequent use of object pronouns and partially to the intrusion of prepositions in contexts which did not require them. Similar results were noted in French.

The percentage of errors decreases significantly from grade 1 to grade 2 and then increases slightly from grade 2 to grade 3. This increase is, however, not significant (Table 53B). It is of interest to note that when the percentages of preposition errors produced in Hebrew and in French are informally compared, it becomes apparent that the immersion students produced approximately the same percentage of errors in both languages, whereas the corresponding native speakers differed markedly in their performance. The Israeli children made only 1% errors, whereas the francophone children made 9%. This relatively high percentage of errors produced by

Table 53

Prepositions

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 53A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
9.56	23.83	30.83	.000

Table 53B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
44	24	27	.000

the francophone children was taken as an indication of inherent difficulties in the French preposition system. Given the small percentage of errors produced by the Israeli children, the question arises as to whether the preposition errors produced in Hebrew by the immersion students are predominantly caused by specific structures which contrast with the corresponding L1 structures.

General Prepositions

As noted in chapter III, the class of general prepositions includes all prepositions except the accusative case marker 'et and the dative case marker le in possessive and attributive constructions. The distribution of the mean number of obligatory contexts provided in each of the three grades shows that the number of these contexts increases from grade 1 to grade 3; consequently, the mean number of obligatory contexts in grade 1 is significantly lower than those in grades 2 and 3 (Table 54A). By contrast to the findings observed for the major class of prepositions, the grade 3 children provided fewer contexts for general prepositions than the Isareli children ($\bar{X} = 18.30$). Most of the prepositions produced denoted spatial relationships. The most frequent prepositions were 'al 'on', be/ba 'in/in the', le/la/'el 'to/to the', mi/min 'from'. As noted in chapter III, the forms ba and la are contracted forms of the prepositions be and le with the definite article ha. They have been listed here with the prepositions for easier interpretation of the examples that will be cited. It is of interest to note that the immersion students produced mostly the more formal form 'el 'to', whereas the Israeli children always produced the form le, which is more frequently used in spoken Israeli Hebrew. Some of the prepositions produced by the Israeli children were only produced by grade 2 and mainly grade 3 children in the immersion program. In particular, the preposition bišvil 'for/in order to' appeared only in grade 3, whereas the corresponding French preposition pour was used at all three grade levels.

Table 54

General Prepositions

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 54A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
4.83	13.39	15.67	.000

Table 54B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
6	9	17	.000

The increase in the percentage of errors across the three grades is such that the proportion of errors produced in grade 3 is significantly higher than those produced in grades 1 and 2 (Table 54B). This pattern has been observed in several other classes examined in Hebrew. In each of these cases, it has been suggested that the children may have initially produced the relevant forms as prefabricated patterns. Here too, it is possible that the learners may have retained noun phrases containing a preposition as 'unanalyzed units'. Such an assumption is all the more plausible in this class in view of the fact that many of the prepositions are bound morphemes, e.g., ba-bayt 'in the house' which may be perceived accoustically as one unit. It should be noted that in grades 1 and 2 the proportion of errors is below the 10% threshold, whereas in grade 3 this mastery criterion is not met. Closer examination of the structures containing prepositions revealed that the children in grade 1 produced units such as ba-boker 'in the morning' and ba-xuts 'outside' correctly, but overextended the use of locatives in sentences such as:

*ha-bayta ha-ze katan.
(ha-bayt ha-ze katan.) 'This house is small.'

where the discontinuous morpheme ha-...a corresponds to the English structure 'to the' indicating direction or movement towards the object. Furthermore, some of the children in grade 1 substituted the more specific term sidur 'prayerbook' for the more general term sefer 'book' in the sentence:

hu kore ba-sidur. 'He reads in the prayerbook.'

when there was in fact no indication in the picture that the book in question was a prayerbook. These examples seem to support the notion that the children may have retained some units *in toto*. Hence, expressions such as ba-bayt 'at home', ba-xuts 'outside' may also have been produced as prefabricated patterns. In grade 2, two types of errors were most frequent. Some children overextended the use of the preposition be/ba to indicate direction and not only location, e.g.,

*hi holexet ba-xuts.
(hi holexet ha-xutsa.) 'She goes outside.'

Since in English the term 'outside' indicates both direction and location, e.g.,

She goes outside.
She is outside.

the deviant form in Hebrew could be attributed to L1 interference. There is, however, little support for L1 interference in this particular case since similar errors occurred in structures which do necessitate the appropriate preposition in English, e.g.,

*hi holexet ba-xeder.
(hi holexet la-xeder.)   'She goes into the room.'

The other most frequent error produced in grade 2 pertains to the use of the preposition šel 'of' as in 'made of', e.g.,

*'iš šel šeleg
('iš šeleg)   'a snowman'

It is noteworthy that the word order of the English compound noun which contrasts with the corresponding Hebrew structure does not affect the deviant form. It is probable that the error is caused by analogy to other similar Hebrew structures, e.g.,

ha-kelev šel ha-'iša.   'the woman's dog.'

In grade 3, a new type of error appears which is similar to that noted above for the corresponding French structures, e.g.,

*hem mistaklim bišvil ha-sefer.
(hem mexapsim 'et ha-sefer.)   'They are looking for the book.'
*ha bayt 'al 'eš.   'The house is on fire.'
(yeš srefa ba-bayt.)   'There is a fire in the house.'

The finding, that in some cases it is not only the preposition but the entire expression which is deviant, seems to imply that these errors could be attributed to L1 interference. It is possible that in immersion settings there may be an initial stage in the learning of certain L2 structures which is not affected by L1 interference and that it is only at a later stage, when equivalence between L1 and L2 structures are perceived, that L1 transfer occurs. It should be noted that errors which could be distinctly interpreted as L1 interference errors constituted only 7% of all the errors in this class. As noted above, the Israeli children made almost no preposition errors (1%).

The Preposition " 'et "

As noted in chapter III, the preposition 'et functions as a marker of the accusative case when the latter is a determined noun. The mean number of obligatory contexts of the preposition 'et increases rapidly from grade 1 to grade 3 and all three means are significantly different from one another (Table 55A). Furthermore, the children in grade 3 provided more of these forms than the Israeli children ($\bar{X} = 8.00$). This is partly due to the fact that the immersion students did not pronominalize any of the nouns in the accusative case.

The percentage of errors decreases sharply from grade 1 to grade 3, consequently the percentage of errors in grade 3 is significantly lower than those in grades 1 and 2 (Table 55B). Moreover, in grade 3 the percentage of errors reaches nearly down to the 10% threshold. Closer examination of the deviant forms revealed that, whereas all the errors in grade 1 were omission errors, some of the grade 2 and most of the grade 3 errors were intrusion errors, e.g.,

*lo haya 'et ha-yeled ve-lo haya 'et ha-'uga.	
(lo hayta yalda ve-lo hayta 'uga.)	'There was no cake and there was no cake.
*'eyfo 'et ha-'iparon?	
('eyfo ha-'iparon?)	'Where is the pencil?'

Whilst omission errors can be attributed to either intralingual simplification or L1 interference since English has no grammatical form corresponding to 'et, intrusion errors cannot be attributed to L1 interference. Further examination of all the units containing intrusion errors revealed that there was a tendency to insert the preposition 'et in contexts where the following noun was not in sentence initial position. This type of error is similar to that noted by Ziv (1976) with reference

Table 55

The Preposition 'et

Mean Number of Obligatory Contexts and Percentage of Errors According to Grade in the FH Hebrew Program

Table 55A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
1.61	6.83	9.94	.000

Table 55B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
59	20	13	.000

to possessive constructions where the grammatical subject is being interpreted by Israeli speakers as a direct object because of its position in the sentence. It is also an example of possible complexification in the learner's L2 grammar. It is of interest to note that such errors were not found in the oral production of the Israeli children tested in this study.

The Preposition "le" in Possessive and Attributive Constructions

As in the case of the other Hebrew prepositions, the mean number of obligatory contexts for the preposition le in possessive and attributive constructions increases significantly from grade 1 to grade 3. The difference between the means of adjacent grades is, however, not significant (Table 56A). The informal comparison between the mean number of obligatory contexts provided in grade 3 and that provided by the Israeli children ($\overline{X} = 2.40$) reveals that the grade 3 children produced more than twice as many contexts for this form as the Israeli children. This finding is surprising since in the corresponding pronoun class the grade 3 children ($\overline{X} = 5.20$) and the Israeli children ($\overline{X} = 5.50$) produced approximately the same number of obligatory contexts. The difference is thus not due to the immersion students' failure to pronominalize the nouns in these constructions. Closer examination of the immersion students' oral production revealed that the immersion students sometimes used this construction to convey meaning even when the context did not require such information. As an example, the following exchange between tester and child was noted for picture set IV (see Appendix A) where a little boy is looking for his book:

Tester:	
ma 'ose ha-yeled?	'What is the boy doing?'
Child:	
*ha-yeled 'eyn sefer.	
(la-yeled 'eyn sefer.)	'The boy doesn't have a book.'

Furthermore, the Israeli children's speech patterns contained less repetition of certain units. This was often due to the fact that the immersion students had to be asked more questions than the Israeli children in order to elicit the same information, e.g.,

Table 56

The Preposition "le" in Possessive and Attributive Constructions

Mean Number of Obligatory Contexts and Percentage of
Errors According to Grade in the FH Hebrew Program

Table 56A Mean Number of Obligatory Contexts

Grade 1	Grade 2	Grade 3	p
3.11	3.61	5.22	.044

Table 56B Percentage of Errors

Grade 1	Grade 2	Grade 3	p
95	92	83	.051

Tester:	ma 'ata ro'e bištey ha-tmunot?	'What do you see in the two pictures?'
Israeli:	la-yeled haze yeš kova ve-kesef ve-la-ze 'eyn klum.	'This boy has a hat and money and this one has nothing.'
Immers. stud.:	*ha yeled ha-ze yeš kova. ...(silence)	'This boy has a hat...'
Tester:	'u-ma 'od?	'and what else?'
Immers. stud.:	*ha-yeled yeš kesef ve-po ha-yeled 'eyn kesef.	'The boy has money and here the boy doesn't have money.'

The most striking feature about the production of the possessive and attributive constructions is the high percentage of errors produced in all three grades. It should be noted that there is a decrease in the proportion of errors from grade 1 to grade 3, but the difference in the percentages falls short of the .05 significance level (Table 56B). All the errors were of the type noted above, i.e., the children formulated their sentences according to the SVO pattern with the possessor (or the subject in the case of attributive constructions) in the nominative case, thus failing to produce the dative case marker le which is obligatory in these constructions. This error is similar to that noted for the corresponding pronoun class. It is of interest to note that the percentage of errors produced in the corresponding pronoun class is much lower than that produced in this class. This finding seems to support the notion that some of the corresponding pronoun constructions may have been produced as prefabricated patterns. Here again, the Israeli children made no errors.

To summarize, the number of obligatory contexts in all three secondary classes of the preposition increases significantly from grade 1 to grade 3. In two of the classes, the children in grade 3 provided more such contexts than the Israeli children. The distribution of the percentages of errors differs greatly among the three secondary classes and only in one class is there a significant decrease in the proportion of errors from grade 1 to grade 3. Errors in the general prepositions seem to be mainly intralingual, except for errors in specific structures which were produced in grade 3 and which could be attributed to L1 interference. The most noteworthy finding pertaining to the production of the Hebrew prepositions is the contrast between the relatively low percentage of errors in the accusative case marker _'et_ and the very high percentage of errors in the dative case marker _le_ in possessive and attributive constructions. It is possible that the possessive/attributive construction is more difficult to master because reliance on the regular SVO pattern is reinforced by the corresponding L1 structure as well as by similar L2 structures.

Conclusion

This part of the study has focused on the oral production in Hebrew in the FH program. Five major classes which were subdivided into 20 secondary classes have been examined. Two aspects of production were investigated: (1) the number of obligatory contexts and (2) the percentage of errors. The most interesting finding pertaining to the number of obligatory contexts is the paucity of these contexts produced by the grade 1 children in all the grammatical classes. The mean number of obligatory contexts was noted to increase significantly from grade 1 to grade 3; nevertheless, it was found that the grade 3 children still provided fewer such contexts than the Israeli children in all major classes, except in the class of articles. The infrequency of obligatory contexts was chiefly attributed to a lack of the appropriate vocabulary and was particularly noticeable with respect to verbs. It is not clear why the children's Hebrew vocabulary was so limited since most of the lexical items tested were included in the grade 1 curriculum. It is possible that in a program that aims primarily at the transmittance of cultural values this vocabulary is not sufficiently reinforced.

The results pertaining to the percentages of errors show that only one major class (articles) and four secondary classes (third person masculine singular present tense, third person masculine singular past tense, impersonals and the full form of the article) were mastered in grade 3. The most noteworthy finding that emerges from this listing is that all the forms which are considered mastered are either uninflected or invariant. To get a more global view of the relative degree of difficulty experienced by the children with regard to the various classes under study, the classes were ranked, as in French, according to an order of increasing percentages of errors. Since percentages could not be calculated for grade 1 in 11 of the classes, rank orders were established only for grade 2 and grade 3. Furthermore, the object pronouns, the third person plural past tense and the infinitive had to be excluded because no percentage calculations were available for these classes in grade 2. On the other hand, the two classes pertaining to the stem form of the verbs in the present and past tenses, which are subdivisions of the corresponding secondary classes, were included in the rank orders. A hierarchy of difficulty was thus established for 19 secondary classes. Major classes were not included since they present only summations of the corresponding secondary classes. A rank order correlation was calculated using the Spearman's rho technique. The results show a significant correlation at the .01 level (Table 57). The most interesting pattern that emerges from the rank orders is that of the gender-related classes. For both grades, the masculine forms of pronouns, verbs and adjectives were produced with greater accuracy than the corresponding feminine forms. The pattern is thus similar to that found for gender-related classes in French (pronouns, articles and adjectives).

One aspect of language development that is not revealed in the hierarchy of difficulty is the finding that for certain classes the percentage of errors produced in grade 1 is lower than those produced in grades 2 and 3. It has been suggested that for certain forms there may be an initial stage in language development where these forms are retained within larger units

Table 57

Rank Orders of Nineteen Classes According to Increasing Percentages of Errors for Grades 2 and 3 in the FH Hebrew Program

Grade 2			Grade 3		
Class	Rank	%	Class	Rank	%
full form art.	1	2	3rd p.m.sg.past	1	4
3rd p.m.sg.past	2	4	impersonals	2	5
3rd p.m.sg.pres.	3	6	3rd p.m.sg.pres.	3	6
contr.form art.	4	9	full form art.	4	7
general prep.	5	9	stem form pres.	5	10
impersonals	6	11	3rd p.m.sg.pron.	6	13
m.sg.adj.	7	12	prep. 'et	7	13
stem form past	8	13	stem form past	8	15
stem form pres.	9	13	m.sg.adj.	9	15
3rd p.m.sg.pron.	10	15	3rd p.pl.pron.	10	15
prep. 'et	11	20	contr.form art.	11	17
3rd p.pl.pron.	12	33	general prep.	12	17
3rd p.pl.pres.	13	34	3rd p.f.sg.pron.	13	30
3rd p.f.sg.pron.	14	50	3rd p.pl.pres.	14	44
pron.poss/at.	15	55	pron.poss/at.	15	48
3rd p.f.sg.pres.	16	59	3rd p.f.sg.pres.	16	62
3rd p.f.sg.past	17	74	3rd p.f.sg.past	17	66
f.sg.adj.	18	80	f.sg.adj.	18	73
prep.le poss/at.	19	92	prep.le poss/at.	19	83

rho $= .839$; $p < .01$

of structure. These larger units are then produced as prefabricated patterns in the appropriate context. It is only after increased experience with the L2 that the learner identifies the elements of structure contained in the prefabricated patterns and attempts to incorporate them into his L2 grammar. It is of interest to note that, whereas this aspect of development seems to apply to a number of classes in Hebrew (pronouns in possessive and attributive constructions, third person feminine singular present tense, full form of the article, contracted form of the article, general prepositions and preposition 'et) it was found applicable to only two classes in French (reflexive pronouns and elided forms). It is possible that the production of prefabricated patterns may be conditioned by the nature of the forms themselves. On the other hand, if prefabricated patterns characterize an early stage in L2 learning as posited by Hakuta (1974, 1976), the relatively more frequent use of these patterns in Hebrew suggests that the linguistic performance observed at each grade level in Hebrew may be at a more elementary stage than the linguistic performance observed in French at the corresponding grade levels. Other differences in the oral production produced in the two languages further support this hypothesis. In particular, it was pointed out that there was a greater tendency in Hebrew than in French to repeat elements of structure provided by the tester's questions. Furthermore, there was less overextension of content words to convey meaning in Hebrew than in French. Similarly, there was less evidence of attempts to paraphrase units for which the children did not seem to have the necessary lexical items in Hebrew, hence responses were left more frequently incomplete in Hebrew than in French. Finally, the apparent transfer of L1 patterns to L2 structures which was noted at all three grade levels in French with regard to certain structures involving prepositions emerged only in grade 2 and mainly in grade 3 in Hebrew. It should be noted that other researchers (Lococo, 1976; Taylor, 1975) have found that L1 interference characterizes early rather than intermediate stages of L2 learning. This may be due either to the difficulty in identifying prefabricated patterns (Hakuta, 1974), or to the occurrence of these patterns at a stage of L2 learning preceding those investigated by the above-mentioned researchers. One interesting aspect of the identification of prefabricated patterns in L2 learning is that it would bring further support for the similarity between L1 acquisition and L2 learning. The following chapter will address itself to the similarity of these two processes by examining L2 learner strategies.

CHAPTER VI

INTERPRETATION OF ERRORS

This chapter will suggest some strategies that learners may be using in developing their L2 grammars. The chapter will consist of three parts: (1) the different types of errors reported in the previous two chapters will be summarized; (2) the applicability of Slobin's (1973) operating principles to the learning of French and Hebrew as L2 will be examined; (3) the role of L1 interference in the learning of French and Hebrew will be discussed.

Summary of Error Types

In summarizing the major types of errors reported in this study, a distinction will be made between those errors which are common to both French and Hebrew and those which are specific to each language. Errors which are similar in French and Hebrew can be further subdivided into errors which follow the same trend in both languages and errors which seem to indicate different patterns of development in the two languages.

The most pervasive type of error common to French and Hebrew was noted in the gender-related classes (pronouns, articles and adjectives in French; pronouns, verbs and adjectives in Hebrew). Here it was found that the use of the masculine forms instead of the required feminine forms constituted the majority of errors. The summation of all the gender errors in each language shows that 78% of the errors in French and 84% of the errors in Hebrew were errors in the feminine forms. A similar pattern of development was noted with reference to the number-related classes of the verb. Here the use of the third person singular forms instead of the corresponding plural forms constituted the majority of errors. The summation of all the number errors in the verb shows that 67% of all the errors in French and 38% of all the errors in Hebrew were errors in the plural forms of the verb. As noted above, Hebrew verbs are marked for gender, hence not all the singular forms are uninflected and the number of errors in the singular verbs is, therefore, proportionally higher in Hebrew than in French. When the plural verb forms in Hebrew are compared to the uninflected masculine singular verb forms, the proportion of errors is 72% which is slightly higher than that noted for the French plural verbs.

Among the errors which seem to indicate different trends of development in the two languages three types of errors are noteworthy. Firstly, failure to contract the preposition with the following article in the contracted forms of the article was noted in both languages. Here the difference in the proportion of errors between French and Hebrew (87% and 2% of the respective obligatory contexts) is striking. Furthermore, in French this was the only type of error in the contracted forms, whereas in Hebrew two types of errors occurred in these forms, namely failure to contract the preposition with the article and omission of the article. It is possible that the difference in the development of the contracted forms may be partially attributable to differences in the nature of the contraction in each language. In French, certain contracted forms (au, aux) bear no phonetic resemblance to their components (à + le, à + les), whereas in Hebrew the contracted forms (la, ba) always preserve the initial and final sounds of their components (le + ha, be + ha). It should be noted that this applies also to the French contracted form des, however, the majority of contexts in the present study required the forms au and aux.

Secondly, omission errors seem to show different patterns of development in the two languages. Omission of a preposition, which constituted 40% of all the preposition errors in French, accounted for 72% of all the preposition errors in Hebrew. In French, the proportion of these errors did not decrease significantly across the three grades. In Hebrew, there were two different types of omission errors: (1) omission of the preposition 'et which constituted 19% of the omission errors and which decreased rapidly from grade 1 to grade 3 and (2) omission of the preposition le in possessive and attributive constructions which accounted for the remaining 81% of the omission errors and which did not decrease significantly across the grades. As discussed in Chapter V, this high percentage of errors may be attributed to the particular sentence structure of the possessive and attributive constructions. Omission of an article was also more frequent in Hebrew (78% of all the errors in the article) than in French where this type of error constituted less than 1% of all the article errors. Here again the difference may be due to differences in the structure of the two languages. The Hebrew article is not marked for gender and number, hence intrusion and omission errors are the main types of errors, whereas in French gender is the predominant error in articles. Omission errors were also noted for various forms of the pronoun. The summation of all the pronoun errors in each language shows that 41% of the pronoun errors in French were omission errors, whereas only 4% were omission errors in Hebrew. This low proportion of errors in Hebrew is partly due to the absence of obligatory contexts for most object pronouns in grades 1 and 2, and partly to the particular use of the dative case pronouns in possessive and attributive constructions where the children did not omit the object pronoun, but replaced it by a subject pronoun.

Thirdly, the intrusion of prepositions was much more pronounced in French (22% of all the preposition errors) than in Hebrew (7% of all the preposition errors). Furthermore, in French this type of error was noted at all three grade levels, whereas in Hebrew it did not occur in grade 1 and was only sporadically produced in grade 2.

Errors that were typical of French, i.e., they pertained to specific French structures, were errors in the verbs avoir and être (other than number errors which have been discussed above) and errors in certain forms of the article. Errors in the production of avoir occurred either when this verb had to be used as a main verb (36% of all the verb errors) or as an auxiliary (2% of all the verb errors). It should be noted that 55% of the errors pertaining to avoir as a main verb were errors in the idiomatic expressions. Errors in the production of être occurred only when this verb had to be used as an auxiliary (9% of all the verb errors). Errors in the form of the article that were specific to French pertained to the elided form *l'* and to the reduced form *de* (4% and 15%, respectively, of all the errors in the articles).

Errors that occurred in structures particular to Hebrew were predominantly errors in the possessive and attributive constructions. Here the errors could be either in contexts requiring the dative case marker *le* in front of a noun (these errors were counted as omission errors in prepositions and have been discussed above), or in contexts where the noun was pronominalized and a pronoun in the dative case then had to replace the '*le* + N' structure. Failure to produce the appropriate dative case pronoun constituted 42% of all the errors in pronouns. Other errors which were specific to Hebrew were errors in the impersonal forms *yeš* and *'eyn* which constituted 7% of all the verb errors.

This summary of the major types of errors has shown that errors which pertain to gender and number distinctions seem to follow a pattern which is similar in the two languages whereas contraction, omission and intrusion errors seem to point to different trends of development in the two languages. Finally, the proportions of errors pertaining to structures that were specific to each language do not seem to exhibit a particular pattern and could possibly depend on the degree of dissimilarity between each of these structures and the corresponding L1 structure.

Slobin's Operating Principles

The extent to which Slobin's (1973) operating principles and universals can be used to explain the above noted errors will be discussed in the following section of this chapter. Because the operating principles are very broadly defined, only the universals, which are more narrowly specified, will be examined. Furthermore, since the present study deals with oral production, universals which are only applicable to the development of comprehension will not be discussed. Finally, the examples that will be used to support the applicability of the universals to the learning of French and Hebrew as L2 will have to have occurred with a frequency of at least 10% in the obligatory contexts.

Universal C1: The standard order of functor morphemes in the input language is preserved in child speech.

Slobin refers here specifically to bound morpheme affixes and to elements of structure belonging to the same grammatical class such as the ordering of the 'Aux + V' structure of English verbs. Data from the present study suggests that this universal is also applicable to the learning of French as L2. Here the order of the elements of the verb structure in a compound tense was always preserved, e.g., il est tombé 'he fell'; je n'ai pas mangé 'I didn't eat'. With regard to Hebrew, one can cite the absence of errors in the position of the negative particle lo which precedes the verb, e.g., hu lo kore 'he doesn't read'. However, since no statistical data is available for this construction, the applicability of Universal C1 to the learning of Hebrew remains tentative.

Universal C2: Word order in child speech reflects word order in the input language.

The data from the present study suggests that this universal is applicable to the learning of French and Hebrew as L2. As noted in chapter IV, errors in the position of the adjective and of the object pronoun in French occurred only infrequently. Similarly, no errors were noted in the position of the adjective in Hebrew where adjectives such as gadol 'big' and katan 'little/small' follow the noun and thus contrast with the corresponding English and French structures. It should be noted that these findings are contrary to those noted by Dušková (1969) for English, Powell (1973) for French and Lococo (1975) for German and Spanish. It may be that the age of the L2 learner may influence this aspect of L2 learning. Young children, such as the ones tested in this study, may use short and simple sentences, whereas older learners may rely on their greater L1 experience and may, therefore, produce longer and more complex sentence structures.

Universal D1: Structures requiring permutation of elements will first appear in non-permuted form.
Slobin refers here to the word order in interrogative sentences requiring the inversion of the subject with the auxiliary or the copula, e.g., 'Can I go?' which will be first expressed as 'I can go?' In the present study the children never used an inverted question form in either French or Hebrew. Instead they used either a simple affirmative sentence with the appropriate intonation, similar to the example given by Slobin, or, in the case of French, they used the compound interrogative form *est-ce que*. Here again the elements of the sentence structure remain in the same order as in the affirmative sentence, e.g., *Est-ce que tu vas sauver mon chien?* 'Are you going to save my dog?'. It is possible that the data of this study is insufficient to fully support this universal with regard to the learning of French and Hebrew as L2.

Universal D2: Whenever possible, discontinuous morphemes will be reduced to, or replaced by, continuous morphemes.
With regard to L1, Brown (1973) notes that the verbal inflection '-ing' of the English progressive appears first without auxiliary. Omar (1970) found that in Arabic the discontinuous negative form *ma...-š* is acquired later than the prefixed negative *miš* by Egyptian children, although both are equally frequent in the language. Errors similar to Brown's were found in the present study with regard to the *passé composé* of French verbs where omission of the auxiliary was noted in 13% of the obligatory contexts, e.g., **il tombé* 'he fell'; **elle téléphoné* 'she phoned'. Errors related to Omar's example were found in Hebrew where the discontinuous article *ha* was not always repeated in front of an adjective or a demonstrative marker belonging to the same noun phrase, e.g., **ha-yeled ze* 'this boy'. However, these errors occurred in less than 2% of the obligatory contexts,

therefore, it would seem that, with regard to L2 learning, this universal can be supported for French but not for Hebrew according to the data in this study.

Universal D3: There is a tendency to preserve the structure of the sentence as a closed entity, reflected in a development from sentence external placement of various linguistic forms to their movement within the sentence.

Using English negative constructions as examples, Slobin cites forms like '*no do this' which later changed to '*I no do this'. Similar findings are reported by Wode (1976) with reference to the learning of English as L2 by a native German-speaking child, e.g., '*no play baseball' and with reference to the learning of German by a native English-speaking child, e.g., **nicht fahren there* 'don't drive there'. Such constructions were not found in the data of the present study. The children sometimes used a 'verb + object' construction in reply to a question, thus omitting the subject. Such sentences could be seen as kernel sentences in which the verb would eventually move towards the center of the sentence when the subject is added. However, since the children never produced such constructions in other contexts, the pattern may be the result of the testing situation rather than an indication of a developmental stage in the children's L2 performance.

Slobin also notes with reference to Universal D3 that sentence-final relative clauses are earlier to develop than embedded relative clauses. In the present study sentence-final clauses were present in both French and Hebrew, e.g.,

French:

Je vois une dame qui mange beaucoup et une dame qui ne mange pas beaucoup.	'I see a lady who eats much and a lady who doesn't eat much.'

Hebrew:

*ze yalda še-'oxelet harbe ve-ze yalda še-lo 'oxelet harbe.	'This is a girl who eats much and this is a girl who doesn't eat much.'

It should be noted that the Hebrew sentence is incorrect because the demonstrative marker does not agree with the noun and not because of an error in the relative clause. Embedded relative clauses never occurred in either French or Hebrew. It is impossible to know from the data available whether this stage has not yet been reached or whether this type of sentence is avoided in oral production. Thus, with respect to the learning of French and Hebrew as L2, the data from the present study cannot fully support the hypothesis that there is a movement of linguistic forms from sentence external placement to their position within the sentence.

Universal D4: The greater the separation between related parts of a sentence the greater the tendency that the sentence will not be adequately processed.

Slobin's examples refer once again to embedded clauses. As noted above, such clauses were not found in the present study. Lococo (1975), however, found that this universal held true for learners of German as L2 who dropped verbal prefixes when the latter were separated from the verbal stem and appeared at the end of the sentence, e.g., *Ich hole ihn um drei Uhr 'I fetch him at three o'clock' where the verb is abholen and the prefix ab should, therefore, have been placed after Uhr. Such errors were not observed in the present study in either French or Hebrew. Here again the data available may be insufficient to confirm the applicability of this universal to the learning of French and Hebrew as L2.

Universal E1: A child will begin to mark a semantic notion earlier if its morphological realization is more salient perceptually.

To illustrate this universal Slobin notes that Hungarian-Serbo-Croatian children produce the accusative inflection /u/ in Croatian prior to the equivalent /t/ inflection in Hungarian. Slobin himself points out that the notion of perceptual saliency needs to be determined more precisely. Applying the notion of perceptual saliency to L2 learning, Larsen-Freeman (1976) notes that perceptibility features must state whether a morpheme is bound, stressed or a syllable. Furthermore, the position of the morpheme in the word, or in case it is a free morpheme, its position in the sentence must be considered for perceptibility. In the present study it was noted that verbs with third person plural forms which are completely distinct from the corresponding third person singular form, e.g., va/vont 'goes/go', est/sont 'is/are', seem to be mastered earlier than verbs in which the third person plural contains the phonetical stem of the third person singular, e.g., /li/ and /liz/ 'reads/read'. The decrease in the percentage of errors in the verbs not belonging to the first conjugation (from 91% of the obligatory contexts in grade 1 to 75% of the obligatory contexts in grade 3) pertains predominantly to the verbs avoir 'to have', être 'to be', aller 'to go' and faire 'to do/to make'. It is possible that the phonetically distinct forms of these verbs may be perceptually more salient than those forms for which there is less dissimilarity between the singular and the plural forms. With regard to Hebrew, the sharp decrease in the proportion of errors in the preposition 'et from grade 1 (59% of the obligatory contexts) to grade 3 (13% of the obligatory contexts) could be attributable to perceptual saliency since this form, which functions as an accusative case marker, has neither a semantic base nor an equivalent form in English or French and one would, therefore, expect the error to be more persistent. These findings suggest that perceptual saliency does seem to play a role in the learning of French and Hebrew as L2.

Universal E2: There is a preference not to mark a semantic category by Ø ("zero morpheme"). If a category is sometimes marked by Ø and sometimes by some overt phonological form, the latter will, at some state, also replace Ø.

According to Slobin, it may be necessary to distinguish here between marked and unmarked categories (Greenberg, 1966). Thus, children do not inflect the third person singular present tense of English verbs presumably because this category is unmarked in most languages, whereas they overgeneralize marked categories such as the plural marker of nouns, e.g., *sheeps and the past tense marker, e.g., *cutted. In L2 learning inflectional suffixes are slow to emerge as reflected in the relatively high percentage of errors in the third person plural of present tense verbs (80% of the obligatory contexts requiring an inflected plural form in French and 40% of the obligatory contexts in Hebrew, where all third person plural forms are inflected). In all of these cases, except for a small number of third person feminine plural verbs in Hebrew, the error was caused by the substitution of the uninflected third person singular for the required plural form. Therefore, this universal does not seem to be born out by the data in this study.

Universal E3: If there are homonymous forms in an inflectional system those forms will tend not to be the earliest inflections acquired by the child; i.e., the child tends to select phonologically unique forms, when available, as the first realization of inflections.

Slobin cites an example from Russian where the masculine suffix /ɔm/ is used prior to the feminine suffix /oj/ in spite of the fact that the latter appears more frequently in the language because of its wider range of uses. With regard to L2 learning the findings from the present study suggest that this universal may not be applicable to the learning of French and Hebrew as L2. In French the suffix /e/, which marks both the infinitive and the past participle of verbs of the first conjugation as well as the second person plural of almost all verbs, was overgeneralized to the infinitive (15% of the obligatory contexts) and to the past participle (17% of the obligatory contexts) of verbs not belonging to the first conjugation. Moreover, overgeneralization of an inflectional suffix such as /s/, which marks the third person plural of verbs of the second conjugation and which is not homonymous with any past participle or second person plural markers was not noted. In Hebrew the inflectional suffixes examined in this study were not homonymous. Nevertheless, it is of interest to note that the inflectional suffix of the third person plural past tense was never overgeneralized to the corresponding present tense forms in spite of the fact that the present tense plural inflections are the same as those used for nouns and adjectives.

Universal E4: When a child first controls a full form of a linguistic entity which can undergo contraction or deletion, contractions or deletions of such entities tend to be absent.

Here Slobin refers to contractions such as ' I'll '. In French, the failure to contract the preposition with the following article results in errors, e.g., *à+le/à+les 'to the'. Such errors have been noted in L1 acquisition (Bautier-Castaing, 1977; Lentin, 1973). Similar errors have been found in L2 learning. Lococo (1975) notes that Spanish learners fail to contract a + el and de + el. In the present study, this type of error occurred in both French and Hebrew. However, in French the percentage of these errors was very high (87% of the obligatory contexts), whereas in Hebrew it was very low (2% of the obligatory contexts). As discussed above, this difference in the proportion of errors may be caused by the nature of the contraction itself. Universal E4 seems, therefore, applicable to the learning of French as L2, but not to the learning of Hebrew as L2.

Universal F1: The following stages of linguistic marking of a semantic notion are typically observed: (1) no marking, (2) appropriate marking in limited cases, (3) overgeneralization of marking (often accompanied by redundant marking), (4) full adult system.

Universal F2: Rules applicable to larger classes are developed before rules relating to their subdivisions, and general rules are learned before rules for special cases.

These two universals are closely related since the first is actually the overt realization of the rules postulated in the second. Both universals will, therefore, be considered simultaneously here.

Slobin notes the following sequence for the acquisition of English verbs: (1) break, drop; (2) broke, drop; (3) *breaked, dropped; (4) *breakted, *dropted; (5) broke, dropped. Berman (1979) shows a sequential development in the L1 acquisition of the Hebrew binyanim (stem patterns of verbs). For L2 learning Hakuta (1974, 1976) cites three stages for wh- embeddings which are similar to stages 2, 3 and 4 noted by Slobin for the verb 'break'. It should be noted that a sequence of stages can only be observed in a longitudinal study. However, when cross-sectional studies examine different levels of L2 competence, certain of the above stages may be identifiable. Thus, in the present study the percentage of errors of the French reflexive pronouns in the FF program decreases from grade 1 (91% of the obligatory contexts) to grade 2 (69% of the obligatory contexts) and then increases from grade 2 to grade 3 (86% of the obligatory contexts). Furthermore, in grades 1 and 2 the errors were mainly omission errors, whereas in grade 3 intrusion errors of the reflexive pronoun were also noted. These findings seem to parallel to some extent Slobin's stages 1, 2 and 3, i.e., initially the form is practically never used; at a second stage it is used correctly in a limited number of cases and at the third stage there is evidence for overgeneralization of the form to inappropriate contexts. In Hebrew a similar pattern was noted for the preposition 'et. Here again, there is an initial stage with a relatively high proportion of omission errors (59% of the obligatory contexts in grade 1) followed by a stage where these errors decrease significantly (20% of the obligatory contexts in grade 2). Finally, at a third stage, overgeneralization of this form to inappropriate contexts constitutes the majority of errors (9% of the obligatory contexts, whereas omission errors account only for 4% of the obligatory contexts in grade 3). It should be noted that whilst none of these grammatical features have reached the final stage of development, i.e., mastery according to the 10% error threshold criterion, the findings suggest that the data partially correspond to the developmental stages listed in Universal F1. Support for Universal F2 can also be found in the development of certain other grammatical features such as the auxiliary in French. Here it was noted that overgeneralization of _avoir_, which is the auxiliary used with the majority of French verbs, occurs in 20% of the obligatory contexts whereas overgeneralization of _être_ occurs in only 6% of the obligatory contexts. Thus, the use of _avoir_, which constitutes the more general rule for the conjugation of the _passé composé_, seems to be learned before the rule pertaining to the use of the auxiliary _être_ which is a rule for specific cases.

Universal G1: When selection of an appropriate inflection among a group of inflections performing the same semantic function is determined by arbitrary formal criteria (e.g., phonological shape of stem, number of syllables in stem, arbitrary gender of stem), the child initially tends to use a single form in all environments ignoring formal selection restrictions.

This universal is related to universals E2 and F1 and the examples cited in support of those universals are equally applicable here. Lococo (1975) notes that errors in gender in both Spanish and German result from the fact that the L2 learner has no semantic clue to help him in determining gender. In the present study there were also numerous gender errors in those classes where gender is arbitrarily assigned (23% and 34% respectively of the obligatory contexts for French articles and adjectives; 37% and 34% respectively of the obligatory contexts for Hebrew verbs and adjectives). Furthermore, the error analysis has also shown that the children tended to overgeneralize the masculine forms of these classes, thus producing a higher percentage of errors in the feminine forms (78% of all the errors in the French articles and adjectives; 88% of all the errors in the Hebrew verbs and adjectives) than in the masculine forms. These findings suggest that in French and Hebrew the L2 learner also seems to favor the use of a single form in all environments and Universal G1 seems, therefore, applicable to the learning of these languages as L2. The findings also seem to imply that stage 1 of Universal F1 and Universal G1 may apply simultaneously, i.e., the form that tends to be overgeneralized is the unmarked one.

Universal G2: Errors in choice of functor are always within the given functor class and subcategory.
To support this universal Slobin reports that children seldom use an inflectional suffix or a function word with the wrong lexical class. Thus, children may use one case inflection instead of another in Russian, but they will not mark case by a verb inflection. Similarly, they will not confuse conjunctions with prepositions. Lococo (1975) notes with regard to L2 learning that both in Spanish and in German prepositions were often substituted for other prepositions and not for elements of other classes. The results of this study show that the substitution errors in all the grammatical classes under study always consisted of an interchange of forms pertaining to the same grammatical class. This was already noted above with regard to the marked/unmarked forms. Moreover, in both French and Hebrew errors pertaining to incorrect verb forms, such as in the case of the auxiliary of the passé composé or the idiomatic expression in French, always consisted of the substitution of one verb form for another. Furthermore, when forms were created that do not exist in the language, such as the errors in the past participle in French (17% of the obligatory contexts) or errors in the stem of the Hebrew verbs (13% of the obligatory contexts), these forms maintained the characteristics of the class to which they belonged. Hence, this universal seems applicable to the learning of French and Hebrew as L2.

Universal G3: Semantically consistent grammatical rules are acquired early and without significant error.

Slobin reports that a Samoan child had acquired at a very early stage of language development the distinction between two articles based on the feature ± human. Similarly Brown (1973) found that children never overgeneralize the '-ing' inflection of the present progressive in English to 'state' verbs such as 'know', 'like', 'need'. The data from the present study suggest that this universal may be only partially born out in L2 learning. Both in French and in Hebrew the children overgeneralized the masculine pronoun 'he' to contexts requiring the feminine form 'she' in spite of the fact that all the pronouns had ' +human' referents. The results, however, also show that the decrease in the proportion of errors in these forms is much more rapid across the grades (from 55% to 24% of the obligatory contexts in French and from 33% to 15% of the obligatory contexts in Hebrew) than when gender is arbitrarily assigned, as in the feminine adjectives where there is little or no decrease in the percentage of errors from grade 1 to grade 3 (from 52% to 49% of the obligatory contexts in French and from 71% to 73% of the obligatory contexts in Hebrew). It would seem that whilst semantically based rules may be learned earlier than rules inferred from arbitrary criteria, they are produced initially with a relatively high percentage of errors. Hence, this universal does not seem to find complete confirmation in the data of this study.

To summarize, of the 13 universals that were found relevant to the present study, five universals (C2, E1, F2, G1 and G2) seem applicable to the learning of French and Hebrew as L2. These universals pertain to word order, perceptual saliency, the avoidance of exceptions, the importance of semantically based rules and the learner's recognition of grammatical classes in L2. Three other universals (C1, D2 and E4) pertaining to discontinous morphemes and contraction of certain lexical items are born out in French, but do not in Hebrew. Finally, two universals (F1 and G3) are only partially exhibited in the learning of French and Hebrew as L2. These universals pertain mainly to the sequencing of learning stages and to the early emergence of certain inflectional markers. As noted above, the non-applicability of universals involving different stages in the development of a grammatical functor may be due to the fact that the present study is not longitudinal. On the other hand, it may also be due to the nature of the environment in which the second languages are learned, since many of the errors pertaining to French in the present study have been found at higher grade levels in immersion programs (Hamayan, 1978; Ruther & LeCoq, 1973; Spilka, 1976). The finding that certain universals were not evidenced in the learning of French and Hebrew as L2 may be due to the structure of the two languages. Slobin himself notes that the more narrowly the strategies are defined, the more language specific they become. Thus Universals D3 and D4 are born out for German (Lococo, 1975; Wode, 1976), but not for French and Hebrew according to the data in the present study. Finally, it is also possible that certain aspects of the children's verbal performance in the two languages may not have been revealed in the present study due to the nature of the tests which were aimed at examining only a limited number of grammatical features.

With regard to the different types of errors which can be explained by Slobin's universals, one notes that all the errors pertaining to the inflectional forms in both French and Hebrew belong to this group. Another error common to French and Hebrew, and which could be accounted for by the application of one of Slobin's universals, is the failure to use the contracted forms of the article, although here the proportion of errors in Hebrew is lower than the 10% criterion posited for support of a universal. With regard to errors which were specific to each language, the universals seem to be more evidenced in the learning of French (omission of the auxiliary in the passé composé, overgeneralization of the auxiliary avoir and the prior emergence of phonetically distinct plural forms) than in the learning of Hebrew. With respect to the latter, certain aspects of the development of the preposition 'et were explained in terms of perceptual saliency (Universal E1) and overgeneralization (Universal F2). It is of interest to note that certain errors that were produced very frequently, such as errors in the idiomatic expressions in French and errors in the possessive and attributive constructions in Hebrew, could not be accounted for by Slobin's universals. With regard to these errors we now turn to L1 interference as a strategy in L2 learning.

Strategies of L1 Interference

Prior to discussing L1 interference with regard to those errors which could not be explained in terms of Slobin's universals, it should be noted that two types of errors to which these universals seem to apply can also be traced to L1 interference, namely errors in the contracted forms of the article in both French and Hebrew and omission of the auxiliary in the passé composé of French verbs.

With regard to the errors which seem distinctly attributable to L1 interference two types of errors in French and one in Hebrew are particularly noteworthy because of the high percentage of errors involved. In French omission of the reflexive pronoun (82% of all the obligatory contexts) and errors in the idiomatic expressions where the verb avoir 'to have' was replaced by the verb être 'to be' as in *il est chaud 'he is hot' (74% of all the obligatory contexts) seem attributable to L1 interference. It should, however, be noted that in the case of the reflexive pronouns it is difficult to know whether the errors are due to the transfer of the corresponding L1 structure or whether a more general strategy of simplification, as in the case of the omission errors in object pronouns in French and Hebrew, operates simultaneously with a strategy of L1 transfer. Indications that L1 interference may operate differently in the case of the reflexive pronouns than in the case of the idiomatic expressions may also be inferred from the finding that the development of the reflexive pronoun from grade 1 to grade 3 seemed to follow a certain sequence of learning stages (Slobin's Universals F1 and F2), whereas no such development was noted in the case of the idiomatic expressions. In Hebrew the possessive and attributive constructions such as *la-yeled yeš sefer* 'the boy has a book' and *la-yeled xam* ' the boy is hot' were produced by omitting the preposition *le* which acts as a dative case marker here, thus reconstructing the sentence according to the corresponding English pattern. Similarly, when the noun in these constructions was pronominalized, the children produced a subject pronoun instead of the required object (dative case) pronoun. As noted in chapter V, the percentage of these errors was much lower in the latter case (15% of the obligatory contexts in this class, as compared to 89% of the obligatory contexts in the constructions where the noun was not pronominalized).

Other types of possible L1 interference errors were produced less often. Most frequent were omission errors which occurred in three grammatical classes. Firstly, the French pronoun *en* seemed omitted in certain negative constructions, thus paralleling the corresponding English structure, e.g., **ce garçon a de l'argent et l'autre n'a pas* 'this boy has money and the other doesn't'. This type of error was found in 23% of the obligatory contexts for object pronouns. Secondly, 4% of all the errors in plural articles (less than 1% of the obligatory contexts) were omission errors in constructions where the corresponding English structures have no article, e.g., **il a un manteau et bottes* 'he has a coat and boots'. It is of interest to note that in Hebrew where the article has only one form, namely *ha* corresponding to the English definite article 'the', omission errors could not be traced to L1 interference. Thirdly, omission errors in prepositions were noted in both French and Hebrew. In French omission errors were found in 21% of the obligatory contexts. In Hebrew, aside from the omission of *le* in possessive and attributive constructions which was discussed above, omission errors were noted for the preposition *'et* (14% of the obligatory contexts).

Three other types of errors, two of which pertain to prepositions, could also be traced to L1 interference. Firstly, certain substitution errors in prepositions seem to be caused by L1 interference, e.g., **la maison est sur feu* 'the house is on fire'. These errors were noted in 6% of the obligatory contexts in French and in 3% of the obligatory contexts in Hebrew. Secondly, in French all of the intrusion errors of prepositions could be attributed to L1 interference (12% of the obligatory contexts). In Hebrew intrusion errors similar to the ones noted for French occurred in less than 1% of the obligatory contexts. Intrusion errors were also noted in the case of the preposition *'et*. However, these errors may not be attributable to L1 interference since there is no accusative case marker in front of English nouns. Thirdly, in French L1 transfer seems to underlie the intrusion of the copula *être* 'to be' in front of a present tense verb form (less than 1% of the obligatory contexts for the third person singular present indicative). A similar error occurred in Hebrew with the corresponding copula *haya* 'was'. However, this construction exists in Hebrew. Hence, the error cannot be unambiguously attributed to L1 interference.

Two types of L1 interference errors which are beyond the scope of this study are nevertheless noteworthy. The first type pertains to errors which involved forms not analyzed in this study, e.g., the failure to use the subjunctive in French and the tendency to use a neutral form corresponding to the English pronoun 'it' in contexts where both French and Hebrew would require a pronoun marked for gender, e.g., **c'est fermé* for *elle (la porte) est fermée* 'it (the door) is shut'. The second type of L1 interference error pertains to lexical errors and, in particular, to the use of L1 (and in the case of the children in the FH program also L3) lexical items. Here it is of interest to note that in French the children in the FH program used English lexical items markedly more often (131 items) than the children in the FF program (16 items). The FH children's French speech patterns also contained some Hebrew lexical items (71 items). The FH children's Hebrew speech patterns contained 209 English lexical items and 61 French lexical items. Whilst these findings are not directly related to the error analysis of this study, they do seem to support the notion that the three language groups FF, FH (French) and FH (Hebrew) represent three different levels of L2 proficiency.

To summarize, this chapter has looked at Slobin's universals and at L1 interference in an attempt to interpret the errors found in the data of this study. Several universals were found applicable to the learning of French and Hebrew as L2, but not all were found equally evidenced in both languages. Furthermore, some universals could only be partially born out. Two related issues pertaining to the applicability of these universals to L2 learning should be considered. Firstly, there seems to be a certain degree of overlap between some of the universals, e.g., Universals E2, F2 and G1 all deal with the overgeneralization of inflected forms and although they appear to apply to different contexts, it seems difficult to distinguish between them operationally. Secondly, certain errors which were found in the present data and which cannot be attributed to L1 interference could not be accounted for by Slobin's universals. These errors pertain mainly to errors which seem attributable to a strategy of simplification as in the case of the omission of object pronouns in both French and Hebrew. Slobin (1979, personal communication) has recently noted that he is in the process of "re-evaluating and extending" the notions of the operating principles. It would be of interest to see whether the above-mentioned issues would be accounted for in such a revision.

Finally, it should be noted that for many of the errors discussed above several strategies may be operating simultaneously. This was noted in the case of those errors which could be attributed to intralingual overgeneralization as well as to L1 transfer, as in the case of the contracted forms of the article in both French and Hebrew. In other cases, as noted with regard to the omission of the Hebrew preposition 'et, the error seems distinctly traceable to L1 interference and it is only when the development of the form is considered longitudinally that the possible influence of perceptual saliency becomes apparent. It may be the case that the development of a grammatical feature is influenced by the number of strategies the learner uses in producing that form.

CHAPTER VII

CONCLUSION

This study proposed to investigate the development of grammatical forms in five major classes (pronouns, verbs, determiners, adjectives and prepositions) in two languages, French and Hebrew, when these languages are learned in immersion settings. The purpose of the study was:

1. To compare the oral performance in French in two different types of early immersion programs, a one-language immersion program (FF) and a two-language immersion program (FH) at three different grade levels, grades 1, 2 and 3.
2. To compare the oral performance in French among grades 1, 2 and 3 in each of the two programs.
3. To compare the oral performance in Hebrew among grades 1, 2 and 3 in the FH program.
4. To investigate whether L1 learning strategies such as Slobin's operating principles could apply to the learning of French and Hebrew as L2.

In the following sections the results obtained from the linguistic analysis will be summarized in order to answer the seven specific questions which this study proposed to answer and two aspects of L2 development will be discussed based on the findings of this study: (1) the relationship between the quantitative and the qualitative performance, i.e., the relationship between the obligatory contexts and the percentage of errors and (2) the significance of the hierarchy of difficulty noted in the learning of the grammatical features examined in this study. In the last two sections, certain implications for the classroom will be considered and some suggestions for future research will be made.

Prior to summarizing the findings, it should be noted that the discussion of the relevant issues is constrained by the nature of the study. Two restrictions in particular should be born in mind. Firstly, the study has examined L2 learning in immersion settings where the learning of the L2 is largely informal but with little exposure to native speech, hence, the findings of this study may not be equally applicable to other L2 settings. Secondly, the study used a cross-sectional approach at different levels, hence, the conclusions pertaining to the development of L2 must be accepted cautiously. Despite these limitations, the findings of this study should constitute a partial but true contribution to the delineation of L2 learning in settings similar to the one under which this study was carried out.

Synthesis

The Quantitative Performance

The results pertaining to the analysis of the obligatory contexts in French show that there is a difference between the two programs in the children's quantitative performance. In grades 1 and 2 the children in the FH program made significantly fewer attempts at using pronouns than the children in the FF program. The children in the FH program also used significantly fewer verbs than the children in the FF program in those same grades. By contrast, the children in the FH program used more nouns and consequently more articles and adjectives than the children in the FF program.

These findings answer the first question this study has examined, namely that the number of grammatical features produced in French at each grade level is not the same in the two programs.

The most interesting finding that emerges from the quantitative analysis is that the children in both programs and at all three grade levels made markedly fewer attempts at using pronouns than the francophone children. This slow development of pronominalization can be interpreted as a strategy of simplification whereby the learner avoids the need to establish referential relationships. This strategy also allows the learner to rely more frequently on the forms provided by the tester's questions. The finding that the avoidance of pronominalization is more pronounced in grades 1 and 2 of the FH program is not surprising since the time of exposure to the L2 in those grades is much less intense in the FH program, hence the learners' interim grammar may be less developed in those grades than that of the children in the FF program at the same grade levels. The finding that the children in the FH program at those grade levels also produced fewer verb occurrences suggests that these children's linguistic repertoire may generally be less developed than that of the children in the FF program at the same grade levels.

The results pertaining to the quantitative analysis also show that within the FH program there is a significant increase from grade 1 to grade 3 in the number of grammatical features produced in practically every grammatical class examined. Furthermore, in most classes the increase is more pronounced between grades 2 and 3 than between grades 1 and 2. On the other hand, in the FF program significant increases in the quantitative performance occur only in a limited number of classes and in several of these classes the increase is more pronounced between grades 1 and 2 than between grades 2 and 3. These results suggest that in the FH program the children's ability to verbalize may develop initially more slowly than that of the children in the FF program. The total increase in verbalization is, however, more pronounced in the FH program so that in grade 3 the children's quantitative performance in the FH program equals, and in some cases surpasses, that of the FF program.

These findings answer the second question this study has examined, namely that the L2 performance in French increases quantitatively across the three grades in each program.

The results pertaining to the quantitative performance in Hebrew again show a significant increase from grade 1 to grade 3 in the number of grammatical features produced in each of the classes examined. When these results are informally compared to those obtained for French in both the FF and the FH programs, it becomes apparent that the increase in quantitative performance is more pronounced in Hebrew than in French. This does not mean that there is more verbalization in Hebrew than in French, but rather that in Hebrew there is a greater difference in the amount of verbalization between grade 1 and grade 3 than there is in French between those grades. The paucity of the children's linguistic repertoire in Hebrew, especially in grades 1 and 2, has been attributed to the possibility that the emphasis on religio-cultural content in the Hebrew curriculum might affect the development of the more conventional child-centered vocabulary tested in this study.

These findings answer the third question this study has examined, namely that the L2 performance in Hebrew also increases quantitatively across the three grades in the FH program.

Of particular interest is the finding that in grade 1 pronominalization practically did not occur in Hebrew. Here again the children frequently used nouns and entire phrases provided by the questions of the tester, thus avoiding as much as possible the rearrangement of linguistic units. These similarities in the quantitative performance of French and Hebrew suggest that it may be possible to look at L2 development across the three programs (FF, FH-French, FH-Hebrew). Thus, if one takes as a base of comparison the amount of verbalization in grade 1, each of these programs can be seen to represent a different stage in L2 development, FF representing the most advanced stage of the three at this grade level and FH-Hebrew representing the least advanced of the three at this grade level. What is of interest is that the more limited the amount of verbalization in grade 1, the more pronounced the increase in quantitative performance between grade 1 and grade 3. Hence, L2 development does not seem to progress quantitatively at the same rate in the three programs and the difference in verbalization between the three programs is less pronounced in grade 3 than in grade 1.

The Qualitative Performance

The results of the error analysis in French show that at all three grade levels the children in the FF program produced proportionally fewer errors than the children in the FH program.

In grade 1 there are, however, only few significant differences between the two programs, whereas in grade 3 the difference is significant in one third of all the secondary classes examined (third person feminine subject pronouns, object pronouns, third person singular present indicative, masculine singular articles, feminine singular articles and reduced form de).

These findings answer the fourth question this study has examined, namely that the performance in French is qualitatively not the same in the two programs for all the classes under study.

The analysis of the different types of errors produced in each grammatical class has revealed some interesting differences between the two programs. Three types of errors were found to be more frequently produced by the children in the FH program. Firstly, the verb être 'to be' was inserted in front of the present tense form of certain verbs, e.g., *il est mange 'he is eating'. Secondly, the auxiliary was omitted in the passé composé *elle entré 'she came in'. Thirdly, there were proportionally more errors in the choice of the appropriate tense. The children in the FH program sometimes also substituted Hebrew prepositions for the corresponding French ones. It has been suggested that the first type of error may be caused by L1 interference. The second type of error could be attributed to a combination of intralingual and L1 interlingual sources, hence, here too L1 interference may play a role. While other types of errors produced by the learners in both programs have been attributed to possible L1 transfer, it would seem that with respect to these particular structures the children in the FH program still rely on their L1 grammar more frequently than the children in the FF program. The other two types of errors suggest that the entire linguistic system of the children in the FH program may be under greater stress due to the presence of the third language and that consequently the learner may have more difficulty in internalizing the target language (French) rules than when only one L2 is learned.

When the development of the qualitative performance across the three grades in the FF program is compared to that in the FH program, one notes that the decrease in the proportion of errors is much more pronounced in the FF program than in the FH program. In particular it is of interest to note that in the FF program the decrease in all but one of the classes is significant between adjacent grades, whereas in the FH program the decrease in several classes is significant only between grades 1 and 3.

These findings answer the fifth question this study has examined, namely that the qualitative performance in French improves more rapidly in the FF program than in the FH program.

In grades 1 and 2 this difference between the programs is not unexpected since the time of exposure is more intense in the FF program. It is, however, noteworthy that the difference between the two programs is most pronounced in grade 3 where instructions in the L2 is no longer that intensive in the FF program since 40% of the time is devoted to English studies. These findings seem to imply that it is not only the intensity of the program, but also the presence of the third language in the FH program, which may influence the qualitative performance of the children in that program.

The results pertaining to the error analysis in Hebrew show that the improvement in the qualitative performance is not consistent, i.e., in a few classes (the third person feminine singular subject pronoun, third person plural subject pronouns, third person masculine singular present tense verbs, and the preposition 'et) the percentage of errors decreases from grade 1 to grade 3, whereas in the other classes there is no decrease and, in some cases (third person feminine singular present tense verbs and general prepositions), there is a significant increase in the percentage of errors from grade 1 to grade 3.

These findings answer the sixth question this study has examined, namely that the qualitative performance in Hebrew is not the same across the three grades in the FH program.

When the qualitative performance in Hebrew is compared to that in French, certain interesting differences in the development of the two languages emerge. Firstly, there are more classes in Hebrew in which the percentage of errors increases from grade 1 to grade 3 than in French, suggesting that the production of prefabricated patterns, i.e., the production of units which the learner has internalized *in toto* may be greater in Hebrew than in French. Secondly, in Hebrew several preposition errors which have been attributed to L1 interference appear mainly in grade 3, whereas in French these errors are found at all three grade levels. A common factor underlies these two aspects of L2 development, namely the ability to identify the grammatical features that characterize each structure. When the learner uses a prefabricated pattern he has not yet identified the grammatical features of that structure. When he transfers a structure from L1 to L2 he has established a correspondence between the grammatical features of the two languages. It would, therefore, seem that this ability to identify grammatical features is more developed in French than in Hebrew, at least in the lower grades. Thus, as in the case of the quantitative performance, the three programs (FF, FH-French and FH-Hebrew) seem to represent three different stages of L2 development in grade 1, with FF again representing the most advanced stage and FH-Hebrew the least advanced stage. Here too L2 development does not progress at the same rate, however, the difference in qualitative performance between the three programs is more pronounced in grade 3 than in grade 1.

The Relationship between Quantitative and Qualitative Performance

When the quantitative performance in French and Hebrew is compared to the qualitative performance in the two languages, it becomes apparent that these two aspects of L2 learning seem to develop in opposite directions, i.e., the more the quantitative performance increases the less the qualitative performance improves. To interpret these findings it may be useful to look at Brown's (1973) hypothesis that the acquisition of meaning precedes the acquisition of form in L1 development. In the case of L2 learning the distinction made in this study between the quantitative performance and the qualitative performance parallels Brown's distinction between meaning and form in L1 development. Like the L1 learner, the L2 learner is primarily concerned with conveying meaning. The L2 learner brings, however, to the learning task greater cognitive maturity and L1 linguistic experience. As a result his need to convey meaning extends to a far greater variety of contexts. On the other hand, he does not go through a period of gradual development of basic patterns, but rather proceeds to use a greater variety of structures from the early stages of L2 learning. This trend of L2 development was noted by Lightbown (1977) who observed the emergence of semantic-syntactic categories in two young children learning French in an early immersion program at the kindergarten level. She found little developmental change over time in the structures that were being used. It would seem that the L2 learner is unable to attend simultaneously to the double task of acquiring a large enough vocabulary (meaning) and a sufficiently complex set of structures (form) in order to express meaning adequately. Consequently, the L2 learner attends first to those linguistic forms which express meaning, frequently overextending the use of these forms to new contexts for which he does not yet have the appropriate linguistic form. This aspect of L2 development seems to reflect one of the advantages of immersion programs over regular second language instruction, namely the primacy of communicative competence in L2 learning.

It should be noted that the distinction between stage I (the development of quantitative performance) and stage II (the development of qualitative performance) is not a clearcut division, but rather a gradual shift in emphasis since the development of meaning is an ongoing process and at the same time meaning cannot be expressed linguistically in the absence of form. The present data suggest, however, that it is only after the learner feels confident in his ability to express meaning that he attends more fully to form.

The Development of Grammatical Form

The development of grammatical form was examined within the framework of Slobin's universals. It was found that several of these universals provide a possible explanation for the development of certain grammatical features in both French and Hebrew, especially those that pertain to the emergence of inflected forms. It was, however, also noted that those universals pertaining to the sequencing of learning stages could only be partially supported. This may be because the children in this study are still in the process of developing their L2 grammar, consequently, the more advanced stages of development of certain forms may not yet have been reached. On the other hand, it is also possible that in immersion settings certain deviant forms become fossilized because of the lack of exposure to French-speaking peers and that mastery of these forms is not achieved.

These findings answer the seventh question this study has examined, namely the universals pertaining to (1) the prior acquisition of uninflected forms as opposed to inflected ones, (2) the priority of semantic notions, (3) perceptual saliency, (4) the recognition of grammatical classes in the L2, (5) word order and (6) the failure to use contracted forms are applicable to the learning of French and Hebrew learned as L2 in an immersion setting.

Slobin's universals are thus a valuable tool for interpreting the development of grammatical forms. However, there are other aspects of L2 development which were revealed in the present study and which were not accounted for by Slobin's universals. In particular it was noted that when the grammatical classes under study were ranked in order of an increasing percentage of errors, a high degree of agreement was found between the rank orders of the two French programs at each grade level and between the three grades of each program in both French and Hebrew. The hierarchy of difficulty thus established for each of the two languages suggests that certain classes seem to be mastered at an early stage, whereas forms in other classes continue to be produced with a high percentage of errors. Let us consider the rank orders in grades 1, 2 and 3 of the FF program (Tables 27, 28 and 29). The first thing to be noted is that in all three grades the unmarked forms (third person masculine subject pronouns, third person singular present indicative, masculine singular articles and masculine adjectives) are mastered according to the 10% error threshold criterion (except for a slight deviation in the case of the masculine adjectives). Hence, in accordance with Slobin's Universals F1 and F2, unmarked forms seem to be learned first.

The comparison of the rank orders in grade 1 to those in grade 2, always in the FF program, also reveals that both the third person feminine subject pronouns and the object pronouns advance by five ranks, from 54% and 94% errors respectively in grade 1 to 13% and 35% errors respectively in grade 3. These findings suggest that the forms produced in these classes seem to be in the process of being mastered. This rapid decrease in the percentages of errors may be due to the fact that these classes are semantically based and thus Slobin's Universal G1 seems to be evidenced here.

When the remaining classes on the rank orders are considered, one notes that there is little change in their position on the hierarchy across the three grades and that the decrease in the percentage of errors in those classes is much less pronounced than in the pronoun class. These findings are in agreement with those noted by Spilka (1976) who found that the class of pronouns (excluding reflexive pronouns) was the only one of the five grammatical classes she examined in which there was an improvement of performance from grade 1 to grade 6. The question arises as to whether an explanation can be suggested for the particular rank order of these forms. Firstly, it should be noted that most of the errors in these classes can be explained in terms of overgeneralization of L2 rules. There are, however, certain preposition errors and errors in the reflexive pronouns and in the idiomatic expression which were seen as L1 interference errors. Furthermore, overgeneralization alone cannot explain why errors in certain classes such as the contracted forms are produced proportionally so much more often than errors in classes such as the reduced form de. One possible explanation may be that L1 interference does play a role in the hierarchy of difficulty and, furthermore, that different kinds of L1 interference may be at work here. Thus, when a given concept such as arbitrary gender marking is absent in the L1, or when a given linguistic form does not exist in the L1 as in the case of the reduced form de, the learner has only one frame of reference, that of the L2. Hence, while there may be no direct interference from L1, there is also no positive transfer from the L1 as could be the case for the third person feminine subject pronouns and for the object pronouns. On the other hand, when the L1 does provide a possible frame of reference as is the case for the reflexive pronouns, the contracted forms and the idiomatic expression, all of which rank lowest on the hierarchy of difficulty, the learner seems to revert to a strategy of L1 transfer. One possible reason for the persistence of these errors in the learner's L2 grammar may be the fact that the underlying structures can be associated with other structures in the L2 for which transfer from the L1 is positive. Thus *il est faim 'he is hungry' may be transferred from English by analogy to 'he is happy' where the transfer yields the appropriate unit il est heureux. In other cases, as in the case of the reflexive pronouns, the learner may be combining a strategy of simplification with L1 transfer. Finally, in the case of the contracted forms, it has been noted that the error could be caused either by transfer of an L1 rule or by overgeneralization of the corresponding L2 rule. In each of these cases, L1 transfer has enabled the learner to simplify and regularize the L2 system. Additional examples of this strategy can be seen in expressions such as *c'est ouvert which were produced instead of elle (la porte) est ouverte 'it (the door) is open'. Here it was noted that the learner not only avoids the choice between two different types of pronouns, but also the necessity for gender agreement between the adjective and the pronoun. It may thus be the case that the learner continuously uses both the L1 and the L2 grammar as a frame of reference, always applying those stragegies which will maximally reduce the burden of complexification in the L2.

The rank order for the three grades of the FH program in French are very similar to those of the FF program, except for the third person feminine subject pronouns and the object pronouns. The finding that the percentages of errors in those pronoun classes do not decrease as rapidly in the FH program as in the FF program may be expected since the children in the FH program have been shown to progress less rapidly than the children in the FF program.

Let us look now at the rank orders found for Hebrew (Table 57) and see whether a similar pattern emerges. Firstly, as has been noted above, in Hebrew there is a lot more variability between the rank order in grade 2 and that in grade 3 than was found between those grades in French. Several classes, in particular contracted forms of the article and general prepositions, rank higher in grade 2 than in grade 3. The finding that certain types of errors in these classes appear only in grade 3 suggests that the forms in these classes may not be at the same stage of development as the corresponding forms in French. Hence, the rank orders in Hebrew for these classes may not be comparable to those in French.

With respect to the marked and unmarked forms in Hebrew, the same pattern emerges as in French, i.e. the unmarked forms are learned before the marked ones. Furthermore, invariant forms such as the impersonal verbs and forms whose distribution is invariant such as the preposition _'et_ are also learned early. The finding that the preposition _'et_ is learned early is of particular interest because it suggests that the complexity of the L2 rules may be a more important factor than the presence or absence of the corresponding form in the L1 in determining the rank orders found here. With respect to those classes which rank lowest on the Hebrew hierarchy of difficulty (third person feminine singular present and past tense verbs, feminine singular adjectives and possessive/attributive constructions), two findings are noteworthy. Firstly, arbitrarily marked forms, e.g., third person feminine singular present and past tense verbs, seem to be more difficult to master than the semantically based forms, e.g. third person plural verbs. The same relationship can be found in the French rank orders in grade 3 with respect to feminine adjectives and third person plural verbs. Here again L1 strategies (Slobin's Universal G3) rather than L1 transfer seem to account for the order since plural verbs are not marked in English. Secondly, the class of the preposition *le* in possessive and attributive constructions, in which errors have been attributed to L1 interference, rank lowest on the hierarchy of difficulty. These constructions contrast with the corresponding English structures because they differ from the SVO sentence pattern where the subject is in the nominative case. However, this sentence pattern is also common in spoken Hebrew, hence here as in French, the learner may revert to his L1 because for many of his Hebrew sentences transfer from L1 is positive. It has been noted that when the noun in these constructions is pronominalized, e.g., *yeš lo kova* 'he has a hat', *kar lo* 'he is cold', these units seem less difficult to master than when the noun is not pronominalized, e.g., *la-yeled yeš kova* 'the boy has a hat', *la-yeled kar* 'the boy is cold'. This may be so because the construction *yeš lo* 'he has' may be either learned *in toto* or it may be produced by analogy to *yeš li* 'I have' which is probably frequently used in the classroom. It is also possible that the pronoun is perceptually more salient than the preposition *le* in front of a noun. Here again it would seem that the learner attempts to incorporate target language rules into his interim grammar, but reverts back to his L1 when equivalences between grammatical features in L1 and L2 enable the learner to avoid using new structures.

Thus in both French and Hebrew the hierarchy of difficulty seems correlated with the nature of the strategies used by the learners. The finding that L1 interference is more prevailing in French than in Hebrew may be due to differences in the structure of the two languages. Hebrew is a more synthetic language than French, furthermore, French and English are structurally quite similar. Hence, it may be easier to establish equivalences between grammatical features in English and in French than between those in English and in Hebrew.

The question nevertheless arises as to why the L1 interference errors discussed above are so persistent in the learner's L2 speech patterns, since L1 interference usually characterizes early stages of L2 development. As noted earlier, one of the characteristics of language learning strategies is to reduce the burden of complexification. It may be the case that when a linguistic pattern in the L1 has two representations in the L2, the learner will tend to continue producing only one pattern, namely the one that corresponds to his L1. It should be noted that in so doing the learner actually uses Slobin's Universal F2, namely that general rules are learned before rules for specific cases. In the case of language divergence between L1 and L2, the L2 representation which corresponds to the equivalent L1 structure is for the learner the more general pattern, whereas the other representation becomes a specific case that necessitates the learning of additional rules.

To summarize, the following major findings emerged from this study:

1. The children in the FF program were more proficient in French than the children in the FH program at all three grade levels.
2. The improvement in oral performance in French from grade 1 to grade 3 was more pronounced in the FF program than in the FH program.
3. The children in the FH program were more proficient in French than in Hebrew at all three grade levels.
4. The improvement in the oral performance in the FH program from grade 1 to grade 3 was less consistent in Hebrew than in French.
5. The learning of French and Hebrew as L2 shows similar patterns with regard to the degree of difficulty with which certain comparable grammatical features are mastered in the two languages.

From these findings several conclusions can be drawn. Firstly, time of exposure to the L2 seems to play a role in two ways: (1) intensity of instruction via the L2 seems to affect both the quantitative and the qualitative performance in the L2; (2) cumulative time (measured here by the two-year span between grade 1 and grade 3) seems to compensate for intensity of instruction when the quantitative performance is observed, but not when the qualitative performance is considered.

Secondly, when the simultaneous learning of two second languages is compared, the development of each language seems to be affected by (1) the function the language serves in the school curriculum and (2) the relative complexity of the L2 structures when compared to the corresponding L1 structures, i.e., greater dissimilarity between L1 and L2 structures seems to result in a proportionally slower development in that L2.

Thirdly, the development of the quantitative and qualitative performance in both French and Hebrew seems to suggest four stages in L2 learning: (1) the development of meaning precedes the development of form; (2) unmarked and invariant forms are mastered early and without much difficulty; (3) marked forms which are semantically based are learned earlier than forms for which marking is based on arbitrary criteria; (4) L1 interference seems most persistent when there is divergence between L1 and L2, i.e., when two structures in L2 have only one representation in L1.

The finding that there was little progress towards mastery of the grammatical features, other than the unmarked ones, seems to indicate that the learner continues to reduce maximally the burden of complexification in his interim grammar. This strategy may be accentuated in immersion settings where the learner is under constant pressure to convey meaning in a great variety of contexts. It is of interest to note that the continued use of a simplified code implies that the L2 learner in immersion settings may only use those strategies which characterize early stages of L1 acquisition and that additional strategies, such as the "conscious enterprises" proposed in Bialystok's (1978) model must be developed by L2 learners in order to enable them to approximate the target language more closely.

Implications for the Classroom

The present study has pointed out several aspects of learner difficulties in both French and Hebrew which seemed to be shared to varying degrees by learners at all three grade levels. This observation suggests that the learner does not seem to modify his hypotheses about the target language sufficiently in order to adjust his interim grammar to approximate more closely that of the target language with respect to certain forms. The learner thus continues to use a "reduced" or simplified code of the L2. It has been pointed out above that one of the reasons for this strategy may be that the learner will not complexify his grammar if he can convey meaning adequately. The question then arises as to how such a process of complexification can be brought about in the immersion classroom.

The suggestions that will be given here are based on a new trend in L2 research, namely the inquiry into the learner's awareness of grammatical rules. Hamayan (1978) compared grammaticality judgments given by two groups of children learning French as a second language and found that children who were more proficient in the L2 could verbalize grammatical rules more adequately. Furthermore, when the judgments made by the L2 learners were compared to those made by francophone children at the same grade level, the judgments of the L2 learners were found to be more explicit, whereas those of the francophone children were more intuitive. Hamayan concludes that "second language learners are more likely than native speakers to focus consciously on linguistic form" (p. 95). What seems crucial then is to capitalize on this linguistic awareness of the learner and to maximize the opportunities for the development of learner hypotheses about the L2 grammar.

This does not imply that grammatical patterns should be repeatedly drilled; nor should errors be continuously corrected, a strategy that causes embarrassment and frustration to the learner. It implies rather the development of a teaching technique that uses errors as a tool for developing within the learner inner criteria for self correction. Moreover, the process has to be a pervasive one, i.e.,whatever method of implementation is developed must not be confined to specific slots within the language arts program, but must be incorporated into the total classroom curriculum of the immersion program so that the learner is constantly reminded that correctness of form is an integral part of communication. There are numerous ways of developing such a program. Basic to the program are several issues which are succinctly summarized by Valdman (1975). Since Valdman addresses himself predominantly to adult L2 learners, only those points which are pertinent to immersion programs will be discussed here. Firstly, the introduction of grammatical features should be graded. This would seem particularly crucial in the immersion setting where the learner is exposed to an enormous variety of grammatical forms. In the absence of appropriate guidance the learner expands his vocabulary, but seems to only minimally complexify his grammar. Secondly, grammatical features should be ordered cyclically, i.e., a given feature should be reintroduced at several points and related to other features. It is this principle which would be applied if the feature in question is reintroduced throughout all the subject areas within the curriculum. Thirdly, the selection and ordering of linguistic features must be compatible with the learner's approximate system. It is here that error analysis is most valuable for it is precisely through the study of learner errors that information about the learner's system can be obtained.

To illustrate how such a program could be developed at the grade levels examined in this study, let us look at a grammatical feature which has been extensively investigated here, namely gender. The percentage of errors of the feminine forms were noted to be consistently higher than those of the masculine forms, suggesting that the learners seem to be aware of the two forms, but have not sufficiently developed rules constraining each gender form to its appropriate context. In regular L2 courses such information is usually provided by textbooks. An investigation of the teaching materials used in grades 1, 2 and 3 in immersion programs reveals that no provision is made there to attract the learner's attention to this grammatical feature. New lexical items such as nouns are introduced in conjunction with the definite article, however, the visual display of the vocabulary does not focus on differentiating the masculine nouns from the feminine ones. One possible way of drawing the children's attention to gender distinctions would be through the use of a colour code, similar to the one used in certain teaching methods for reading (Gattegno, 1968). The basic assumption underlying this method is that the visual saliency of colour will create an association between a given colour and the feature that is to be focused on. Simultaneously, attention will be focused on contrasting features through a system of colour differentiation. What is suggested then in the case of gender for instance, is to use two different colours, one to represent masculine nouns and their associated articles and one to represent feminine nouns and their associated articles. At later stages, these same colours can be applied to other determiners and adjectives. Similarly in a language like Hebrew, where verbs are also marked for gender, different colours could discriminate between masculine and feminine subject-verb groups. As noted before, this code should be applied to all subject materials. Furthermore, the colour-gender association should not be restricted to the learner's passive observation thereof but should be extended to his productive skills, i.e., the learner's actual written production. In this way the learner becomes actively involved in formulating gender associations. Whilst this may not be a practical solution at higher grades, it would seem to be both an easily enforced and enjoyable activity in grades 1 and 2 where the amount of writing produced in the classroom is limited.

This is but one example of how a colour code technique could be implemented. It goes without saying that its applications can be as broad as the teacher or the curriculum planner would wish to extend it. The use of such a colour code would also take into consideration variations in individual learning modes by providing additional opportunities for visual learners to learn through the sensory channel in which they function most efficiently.

Suggestions for Future Research

The findings of this study seem to imply that within the two types of immersion settings examined in this study intensity of program, cumulative time and the presence of a third language seem to affect the level of proficiency in the L2, at least at the lower elementary grades. It would be of interest to see if these results are generalizable to L2 programs operating under different conditions. One direction future research might take is to investigate the effect of the third language when intensity of program is not a variable, i.e., compare the development of the L2 in two programs, one being bilingual and the other trilingual but with equal time of instruction in the L2 common to both programs. These issues are of interest not only to L2 classroom pedagogy, but also to the planning of the bilingual and trilingual programs themselves.

Aside from issues pertaining to the effect of time and intensity of program, several findings have emerged from this study which could be of interest for future research.

Firstly, a great degree of consistency was found between the two French programs as well as among the grades of each program in French and in Hebrew with regard to the degree of difficulty which the different classes under study present for the learner. Whilst it would be interesting to speculate on a possible order in which these classes are mastered, it must be reiterated that the findings in this study are constrained by the nature of the research design. One possible direction future research should take is to conduct longitudinal studies in both French and Hebrew in order to investigate the development of the forms pertaining to the classes examined here. Such a study could also shed some light on the production of prefabricated patterns and their development into fully mastered forms.

This brings us to the second issue which emerged from this study, namely why were so few of the forms mastered according to the 10% error threshold criterion? Whilst it seems too early in grade 3 to claim that certain forms are in the process of becoming fossilized (Selinker, 1972), it must be asked whether the decrease in the percentage of errors noted in certain classes under study are due to the improved performance of individual learners rather than to an overall improvement in the production of these forms. Here it may be useful to identify and compare longitudinally groups of students within the same grade who differ markedly in their level of performance.

The third major finding that has emerged from this study is that the masculine forms in the gender-related classes (pronouns, articles and adjectives in French; pronouns, verbs and adjectives in Hebrew) are mastered prior to the corresponding feminine forms. Two issues related to this pattern are noteworthy. Firstly, even semantically based forms seem to be initially produced with a relatively high percentage of errors. It has been noted that this development does not conform to Slobin's Universal G3. The question then arises as to whether this particular type of error characterizes also L1 acquisition, especially in a language like English where the masculine pronoun 'he' is specific to human referents. Secondly, forms marked for gender by inflection of a content word, e.g., adjectives, seem to be more difficult to learn than lexical items whose entire form is determined by gender, e.g., articles. It would be of interest to extend this question to other languages. Furthermore, it would be interesting to see if the same pattern is obtained when different eliciting instruments are used.

Obviously, no one study can provide all the answers. Each study aims at contributing to our understanding of L2 development and hence broadens the basis for better L2 pedagogy. It is hoped that this study has, in a small way, contributed to this pool of information.

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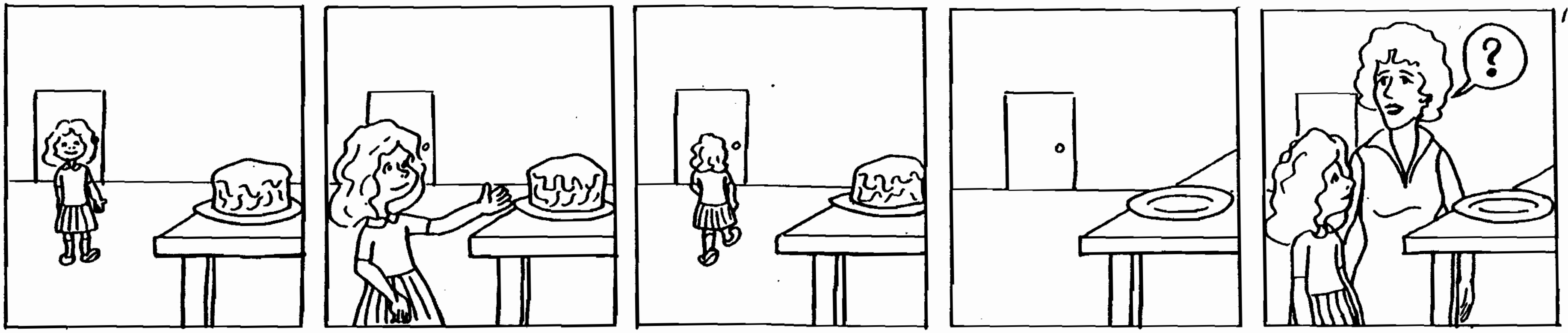
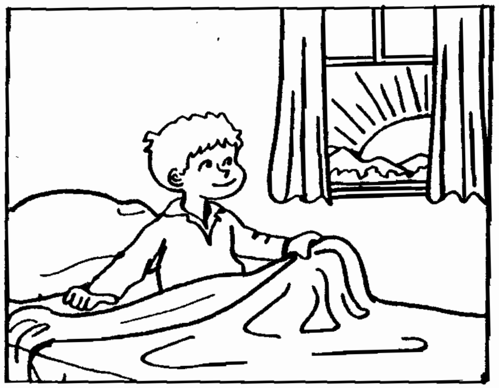


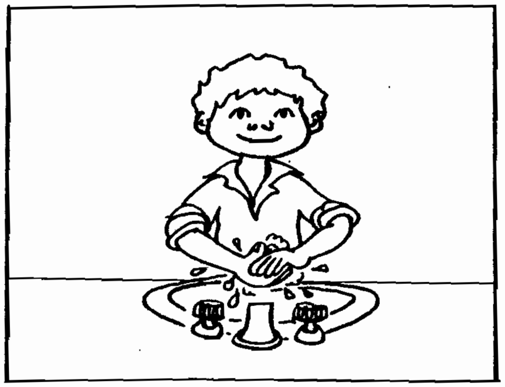
1-5/p

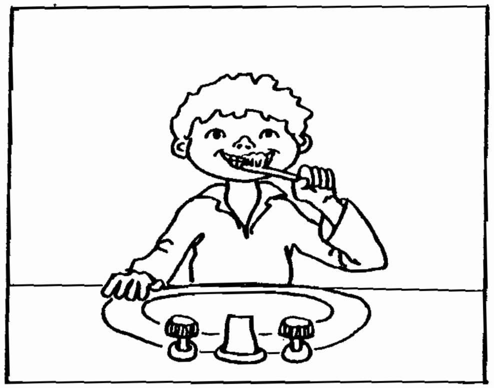
Set I

APPENDIX A

Picture Test: Set I



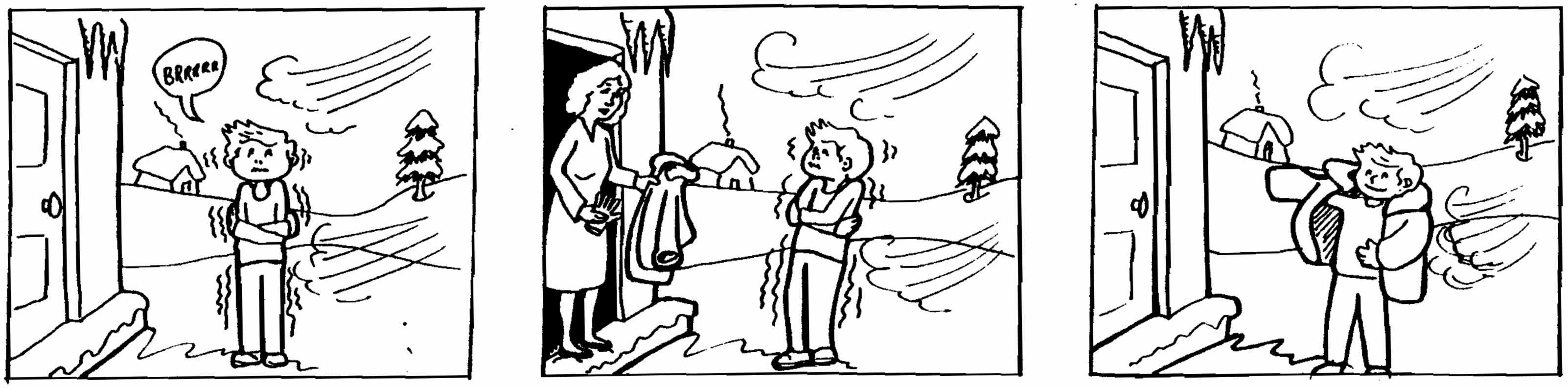




6 - 8/P

Set II

APPENDIX A (cont'd)
Picture Test: Set II

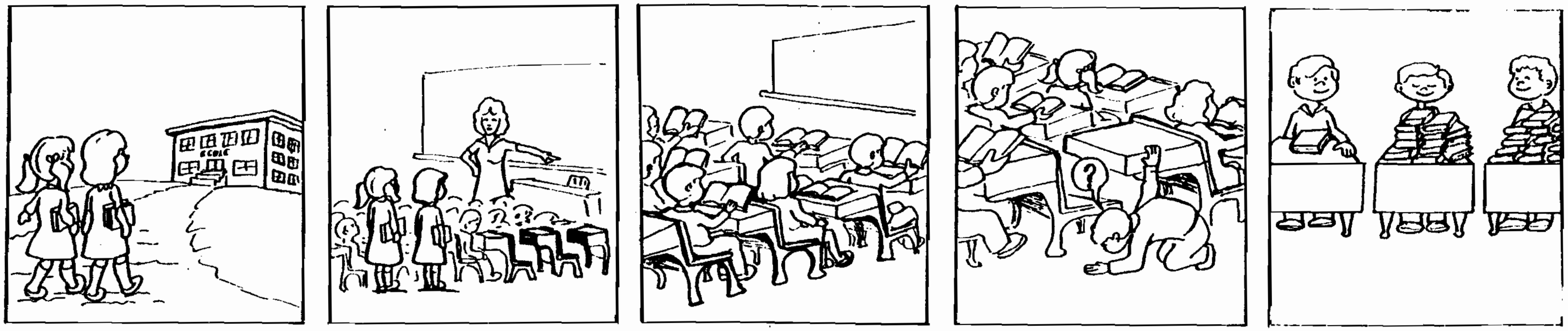


9-11/P

Set III

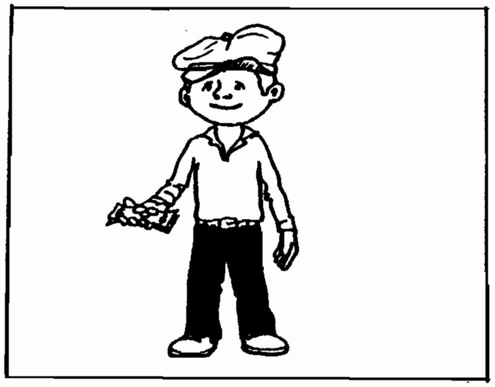
APPENDIX A (cont'd)
Picture Test: Set III

12-16/P

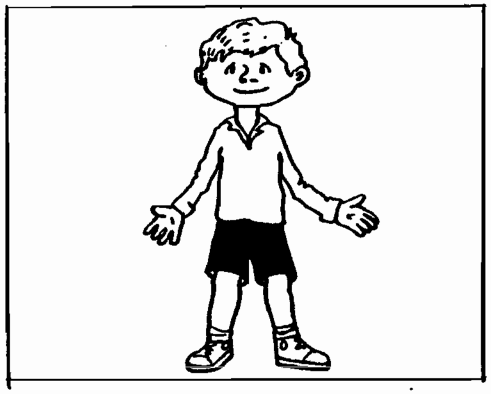


set IV

APPENDIX A (cont'd)
Picture Test: Set IV

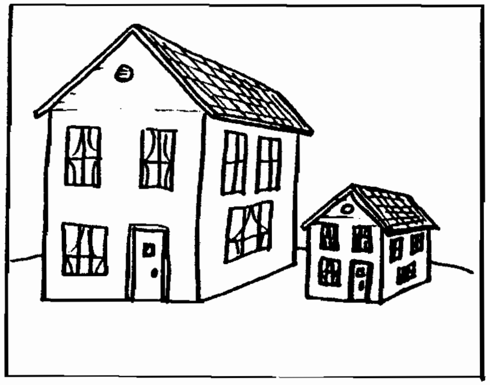


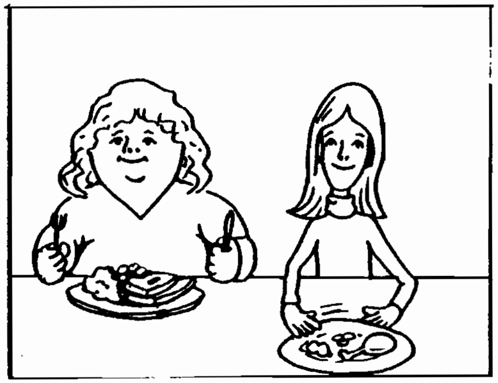
17-16/P



Set V

APPENDIX A (cont'd)
Picture Test: Set V



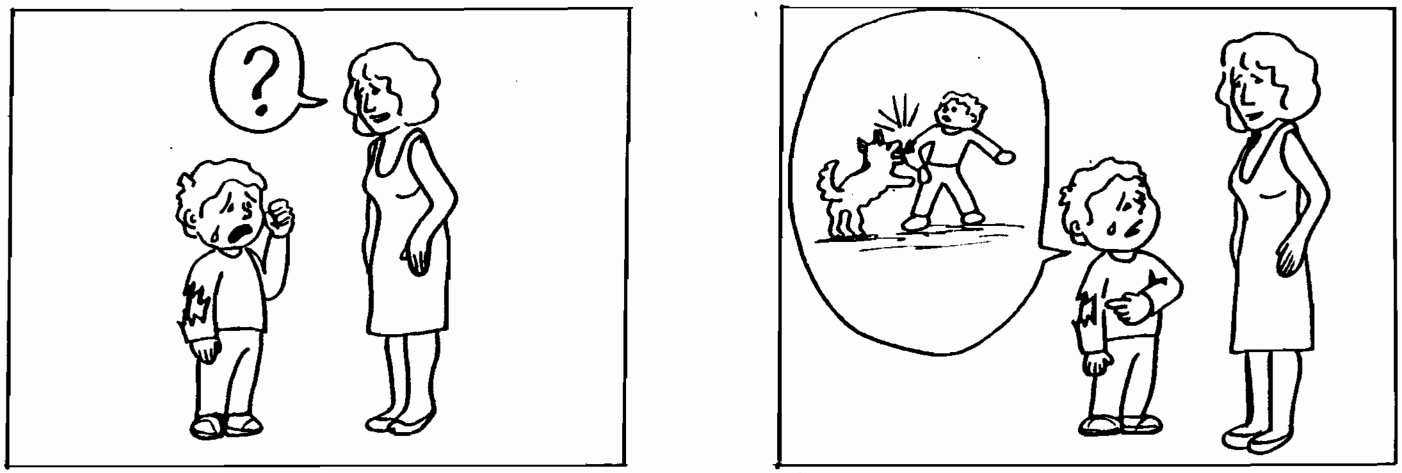


19 - 20, P

Set VI

APPENDIX A (cont'd)

Picture Test: Set VI



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Set VII

APPENDIX A (cont'd)

Picture Test: Set VII

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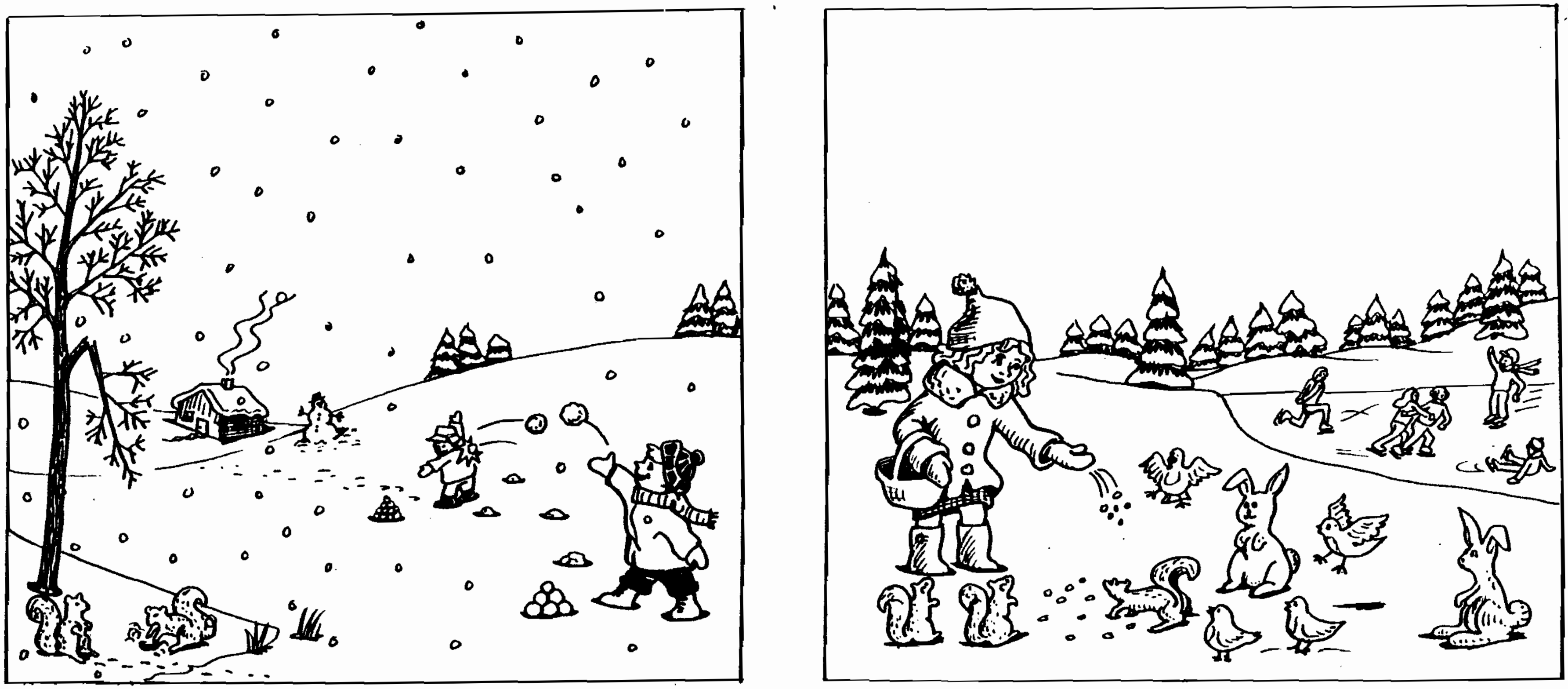
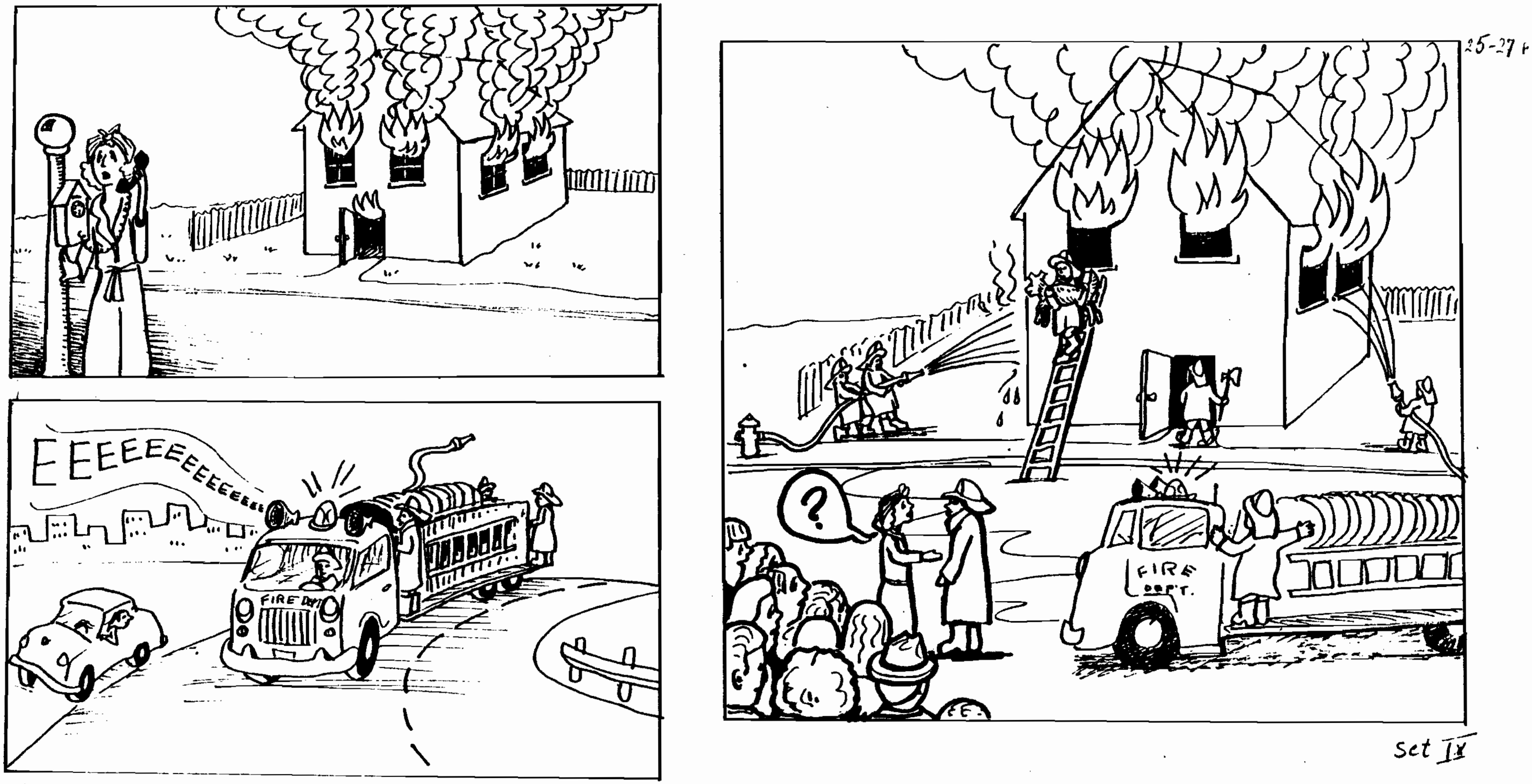


Set VIII

APPENDIX A (cont'd)

Picture Test: Set VIII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Set IX

APPENDIX A (cont'd)
Picture Test: Set IX

APPENDIX B

Transcript of a French Oral Production Test In Grade 2 of the FF Program.

The Picture-Based Test

SET 1

Tester: Hier c'était l'anniversaire de cette petite fille et sa maman lui a préparé un beau gâteau. Qu'est-ce qu'elle a fait, la petite fille, le matin?

Child: Il y avait un gâteau sur le table.

Tester: Oui.

Child: Sur le table et c'était le, le, le anniversaire de la fille et maintenant je...

Tester: Maintenant dis ce que tu vois ici.

Child: Elle marche.

Tester: Oui.

Child: Devant, devant le gâteau et il vient. Il met le main sur le table. Elle voit le gâteau très bien. Et le gâteau est encore sur le table.

Tester: Et là, qu'est-ce qui se passe?

Child: Elle marche devant, devant la /por/, porte et va-t-en, va-t-en.

Tester: Qu'est-ce qui arrive ici?

Child: Et elle a mangé le gâteau. Et après le maman dit qu'est-ce que tu as fait.

Tester: C'est très bien.

SET 2

Tester: Que fait le petit garçon dans ces images?

Child: Il réveille.

Tester: Et après?

Child: Il lave ses mains et après il brosse ses dents.

Tester: O.K.

SET 3

Tester: Et qu'est-ce qui se passe ici?

Child: Le garçon est froid. Il vient pour son manteau et après il mettre son manteau.

Tester: Oui, et quel temps fait-il ici?
Child: Quoi?
Tester: Quel temps fait-il?
Child: L'hiver.
Tester: C'est l'hiver. Et comment se sent le garçon?
Child: Il a froid.
Tester: Et ici, regarde le visage du petit garçon.
Child: ...
Tester: Quelle est la différence? Regarde son visage ici et regarde son visage ici.
Child: Maintenant il est chaud.
Tester: O.K., et regarde la porte ici et la porte là.
Child: Le porte était ouvert et à l'autre dessin c'est fermé.
Tester: C'est bien.

SET 4

Tester: Regarde cette image. Que font les filles?
Child: /marš/ à l'école.
Tester: Et ici?
Child: Ils /va/ dans la classe.
Tester: Et que fait le professeur?
Child: Elle dit ils sont en retard.
Tester: Et ici, que font les élèves?
Child: Ils /li/.
Tester: Que fait le petit garçon ici?
Child: Regarde pour quelque chose.
Tester: Et ici?
Child: Ils ont beaucoup de livres et l'autre garçon n'a juste un.
Tester: Très bien.

SET 5

Tester: Et là, raconte-moi ce que tu vois.
Child: /Cet/ garçon a des dollars et /cet/ garçon n'a pas de dollars.
Tester: Oui, et quoi d'autres? Il y a beaucoup d'autres choses.

Child: Cette personne a des pantalons longs, l'autre a les pantalons courts. /Cet/ garçon a un /cha/, un chapeau, l'autre n'a pas.

Tester: C'est bien.

SET 6

Tester: Et dans cette image qu'est-ce que tu vois?

Child: Une, un maison est grand et l'autre est petit.

Tester: Et ici?

Child: Une mange et l'autre est fini.

Tester: Quoi d'autre?

Child: Une est épais et l'autre est mince.

SET 7

Tester: Bon, qu'est-ce qui arrive ici? Que fait le petit garçon?

Child: Pleure.

Tester: Pourquoi?

Child: Parce que le chien a...e...je ne sais pas comment le dire en français.

Tester: Et qu'est-ce que maman lui demande?

Child: Qu'est-ce que, qu'est-ce qui se passe?

Tester: Et qu'est-ce qu'il dit?

Child: Quelqu'un m'a fait un bobo.

SET 8

Tester: Et là, qu'est-ce que tu vois?

Child: Je vois un garçon dans.... (incompréhensible) le garçon lance le boule de neige.

Tester: Oui.

Child: Et je vois des écureuils et je vois un arbre.

Tester: Qu'est-ce qu'il y a dans l'arbre?

Child: Les branches...et...

Tester: Et qu'est-ce qu'il y a avec la branche?

Child: Elle a brisé.

Tester: Et puis?

Child: Il y a un, un maison.

Tester: Qu'est-ce que c'est ça?

Child: Le neige.

Tester: De quelle couleur est la neige?

Child: Blanc.

Tester: Fais une phrase.

Child: C'est blanc.

Tester: O.K., regarde cette image ici. Que fait la petite fille?

Child: Donne à leur manger.

Tester: Qu'est-ce que les animaux font?

Child: /mãʒ/.

Tester: Et ceux-là mangent aussi?

Child: Non.

Tester: Alors pourquoi sont-ils là?

Child: Ils /vø/ manger.

Tester: Pourquoi?

Child: Ils /e/ faim.

Tester: O.K., maintenant regarde ici. Que font les enfants?

Child: /patin/.

Tester: Et lui?

Child: (incompréhensible)

Tester: Je n'ai pas compris, répète!

Child: Le garçon a tombé.

Tester: Ça va, regarde les arbres. Est-ce qu'il y en a seulement un peu?

Child: Beaucoup, il y a beaucoup d'arbres.

SET 9

Tester: Cette dame habite ici. Elle habite avec son mari, ses deux enfants et son chien. Un matin elle s'est réveillée et qu'est-ce qu'elle a vu?

Child: Un feu.

Tester: O.K. Qu'est-ce qu'elle a fait?

Child: /téléphone/ la police.

Tester: Et après?

Child: Le pompier vient. Il y a une auto et l'auto va de l'autre côté. Et après les pompiers /vjɛ̃/ et ils sauvent le chien et les petits, et les enfants.

Tester: Que font les gens ici?
Child: /regard/.
Tester: Et qu'est-ce qu'elle demande aux pompiers?
Child: Est-ce que il y a des personnes qui sont morts?
Tester: Que fait ce pompier?
Child: Il sauve le chien.
Tester: Et que font ces pompiers?
Child: Ils /fɛ/ l'eau aller à le feu.

The Object-Based Test and the Interview

Tester: Regarde ces papiers de quelle couleur sont-ils?
Child: Vert.
Tester: Une phrase complète.
Child: Le papier est vert.
Tester: Oui, et l'autre?
Child: Le papier est blanc.
Tester: Blanc?
Child: Pas blanc, gris.
Tester: O.K., regarde ces deux crayons. Est-ce qu'ils sont pareils?
Child: Une sont, une est grand, l'autre est petit.
Tester: Bien, et maintenant dis-moi ton âge.
Child: Huit.
Tester: Fais une phrase.
Child: J'ai huit ans.
Tester: Est-ce que tu as des frères et soeurs?
Child: Une soeur.
Tester: Quel âge a-t-elle?
Child: Deux.
Tester: Fais une phrase complète.
Child: Mon soeur est deux.
Tester: O.K., c'est tout, merci.

APPENDIX B (cont'd)

Transcript of a Hebrew Oral Production Test in Grade 2 of the FH program

The Picture-Based Test

סט 1

בוחן : לילדה הזאת היה יום הלדת ואמא עשתה לה עוגה גדולה ויפה,
ומה עשתה הילדה בבקר?
נבחן : היא הול... הולך בחדר ו...ו... המ...
בוחן : לא חשוב, ומה כאן?
נבחן : והיא הולך בחוץ החדר.
בוחן : כן
נבחן : כן, וקמה החדר ה... העגה לא פה ואמא אמרה איפה העגה?
בוחן : יפה, כן.
נבחן : ו... היא אומ... והילדה אומרה אני לא יודע
בוחן : יפה אמרת.

סט 2

בוחן : מה עושה הילד בבקר?
נבחן : הוא קם.
בוחן : כן,
נבחן : ולרחוץ את הידיים ולרחוץ את השניים.
בוחן : יפה, אני חושבת שזה הכל.

סט 3

בוחן : ומה כאן, תראה, זה לא כמו עכשו מתי זה?
נבחן : זה, זה, כהיא בחוץ זה, זה קר ואמרה, המ... פותח את הדלת
והמ... והיא אמרה יש הכו, יש הכָ,המעיל שלו והיא שמה המעיל
והולך לבית ספר.
בוחן : בסדר, אבל תגיד לי מה עוד היא נותנת, אתה יודע?
נבחן : את ה...
בוחן: כן, ותגיד לי מה הוא אומר פה?
נבחן : בר... בר...
בוחן : מה עוד הוא אומר? מה אתה חושב?
נבחן : קר בחוץ!
בוחן : יפה, טוב, ו... ואיך הדלת כאן ואיך הדלת כאן?
נבחן : כאן הדלת פתוח וכאן הדלת סגר.
בוחן : יפה, בסדר.

סט 4

בוחן : ומה עושות הילדות?
נבחן : הולך לבית הספר
בוחן : בסדר, ואחר כך?
נבחן : הוא הולך בחדר והמורה אמרה לשבת בכסאות.
בוחן : יפה, ומה כל הילדים עושים כאן?
נבחן : המורה אומר קורא את בספר.
בוחן : ומה הם עושים?
נבחן : פתות את הספר ויושבים.
בוחן : ומה הם עושים?
נבחן : קרא את הספר.
בוחן : ומה עם הילד הזה שפה?
נבחן : היא לא יודע איפה הספר שלו.

בוחן : (לא ברור) הוא לא יודע?
נבחן : היא...
בוחן : טוב ומה יש לילד הזה?
נבחן : הילד הזה יש ספר אחד והילד הזה יש הרבה ספרים.

סט 5

בוחן : עכשו ספר לי על הילד הזה ועל הילד הזה.
נבחן : הילד הזה יש כובע.
בוחן : כן,
נבחן : והיא יש מכנסיים.
בוחן : כן,
נבחן : וחולצה.
בוחן : טוב, לשניהם יש חולצה כן, ומה יש כאן?
נבחן : המ...
בוחן : טוב לא חשוב וכאן?
נבחן : היא אין להם כובע והיא יש מכנסיים כ... והיא,היא עומד והילדה היא, זה, לא המ... המ...
בוחן : כן, בסדר, זה בסדר.

סט 6

בוחן : וכאן מה אתה רואה?
נבחן : בית גדול מאד ובית קטן מאד.
בוחן : יפה, דפה?
נבחן : המ... ילדה גדול מאד כי אוכל, ילדה כי קטן מאד שהיא לא אוכל.

סט 7

בוחן : כן, יפה. ופה מה עושה הילד?
נבחן : בוכה.
בוחן : למה הוא בוכה?
נבחן : השו, החולצה היא קרע.
בוחן : ומה קורה כאן?
נבחן : אמא אמרה מה, למה אתה בוכה?
בוחן : יפה מאד, ומה הוא מספר לה?
נבחן : היא הולך וכלב הלך על אני והיא קרע את ה... החולצה שלי.

סט 8

בוחן : יפה כן, ומה כאן?
נבחן : זה, זה חורף וכלם ב... בחוץ ומשחק עם ה... כאן זה בחורף.
בוחן : מה קרה כאן?
נבחן : ה... ה...
בוחן : טוב, איזה צבע השלג?
נבחן : לבן.
בוחן : ומה עושה הילדה?
נבחן : היא, היא המ... לקח את סל ובסל יש את לחם והיא לזרוק... וכאן.
בוחן : בסדר, למי הילדה זורקת?

נבחן : לה... צפרים.
בוחן : מה עושות הצפרים?
נבחן : הצפרים אוכל
בוחן : כל החיות אוכלות?
נבחן : לא
בוחן : אז למה הן כאן?
נבחן : .....
בוחן : יפה, ומה עושים הילדים?
נבחן : היא כל ילד קל עושים המ...
בוחן : לא, אבל מה קרה לו?
נבחן : היא נפל
בוחן : יפה, ומה אתה רואה כאן?
נבחן : המ...
בוחן : שכחת, לא חשוב.
נבחן : אני שכחתי.

סט 9

בוחן : תראה האשה הזאת גרה בבית שלה עם הילדים שלה עם הכלב.
נבחן : /e/e/ והבית שלו יש המ... אני לא יודעת את ה/mɵ/והיא
הולך בחוץ הבית והיא הולך לטלפון והיא המ... אה אה...
בוחן : טוב, ומה קורה כאן?
נבחן : ה...ה...המ... אני לא יודעת את ה...
בוחן : בסדר, ומה הם עושים פה?
נבחן : היא לקח המ... ה... כמו והיא היא ה...
בוחן : ומה הוא עושה?
נבחן : היא קח את הכלב מהבית.
בוחן : מה עושים האנשים?
נבחן : רואה...
בוחן : כן,
נבחן : וכאן היא אומרת מה קרה?
בוחן : בסדר, תודה.

The Object-Based Test and the Interview

בוחן : שני העפרונות אותו דבר?
נבחן : לא.
בוחן : איך?
נבחן : העפרונות הזה היא ה... המ... גדול מהעפרון הזה.
בוחן : יפה, תודה. ועכשו תגיד לי איזה צבע הנייר הזה?
נבחן : המ...
בוחן : הנייר הזה
נבחן : אני ס...
בוחן : איזה צבע זה שכחת?
נבחן : כן.
בוחן : בסדר לא חשוב, בן כמה אתה?

נבחן : שמונה.
בוחן : תעשה משפט.
נבחן : אני שמונה.
בוחן : יש לך אחים או אחיות?
נבחן : יש אח
בוחן : בן כמה הוא?
נבחן : חמש.
בוחן : תעשה משפט
נבחן : האח שלי שמונה.

APPENDIX C

Mean Number of Obligatory Contexts and Percentages of Errors for Grade 1 Francophone Children (N = 9)

	Obl. Cont.	% Errors
Pronouns (Total)	52.78	3
3rd p.masc.subj.pr.	27.92	1
3rd p.fem.subj.pr.	11.14	4
obj.pr.	8.00	7
refl.pr.	5.69	9
Verbs (Total)	80.11	2
3rd p.sg.pres.ind.	45.78	0
3rd p.pl.pres.ind.	11.78	5
passé composé	11.00	7
infinitive pres.	6.11	0
idiom.expr.	5.44	0
Articles (Total)	38.56	1
masc.sg.art.	10.00	0
fem.sg.art.	9.22	0
pl.art.	9.56	0
elided form l'	2.78	0
contracted forms	3.00	11
reduced form de	4.00	6
Adjectives (Total)	15.00	1
masc.adj.	6.67	0
fem. adj.	8.33	1
Prepositions	12.89	9

APPENDIX C (cont'd)

Mean Number of Obligatory Contexts and Percentages of Errors for Grade 1 Israeli Children (N = 10)

	Obl. Cont.	% Errors
Pronouns (Total)	30.40	2
3rd p.masc.sg.subj.pr.	8.80	0
3rd p.fem.sg.subj.pr.	4.80	0
3rd p.pl.subj.pr.	6.00	8
obj.pr.	5.00	2
pr. in poss./attr.	5.20	0
Verbs (Total)	59.40	1
3rd p.masc.sg.pres.	12.10	0
3rd p.fem.sg.pres.	5.40	2
3rd p.pl.pres.	11.90	1
3rd p.masc.sg.past	8.30	1
3rd p.fem.sg.past	7.40	1
3rd p.pl.past	1.80	0
infinitives	4.70	0
impersonals	8.80	0
Articles (Total)	33.70	1
full form of art.	24.90	1
contr.form of art.	8.80	0
Adjectives (Total)	11.50	1
masc.sg.adj.	6.10	0
fem.sg.adj.	5.40	2
Prepositions (Total)	28.70	1
general prep.	18.30	1
prep. 'et	8.00	0
prep. le in poss./attr.	5.50	0