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Some principles arising from case studies
on childhood bilingualism

by

Sunanda Pai Vittal

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CHAPTER I

Introduction

A matter of evergrowing interest in the field of child language development is that of infant bilingualism, the simultaneous acquisition of two languages from birth. Whereas a systematic examination of child language in general has revealed certain developmental patterns common to all children, the comparatively new area of infant bilingualism would also seem to require similar scrutiny in terms of general principles and theoretical foundations. Primary evidence for generalizations regarding bilingual acquisition patterns stems from case studies of children learning two languages in a dual language environment. The two languages may be spoken at home or the different languages may be divided between home and community environments. The nature of simultaneous acquisition implies that the child encounters dual linguistic situations from birth with equal or near equal exposure, resulting in his acquisition of both languages. Based on this achievement of the child, linguists have attempted to observe closely the developmental stages and language output in infant bilinguals and to relate it with existing literature on child language acquisition.

The purpose of this thesis is to consolidate, from these prior case studies, linguistic and psychological observations into a set of operating principles that seem to underlie the processes involved in bilingual language acquisition. In the course of this analysis, I will consider linguistic issues of (a) the child's initial lack of

consciousness of two languages operating in his environment and his subsequent merging of the two systems as one and (b) his gradual awareness of two language mediums available to him, leading to a stage of "linguistic interference" or the influence of one language upon the other. I will also discuss the specific semantic function that these languages play in the child's developing cognitive schema, i.e. theoretically, how might the child adjust to the notion of attaching two different labels to a single concept? Is his psychological approach to language as a function for meaning similar to that of a child learning a single language? Are the bilingual's method and rate of progress similar to monolingual acquisition patterns? The answers to these questions have been sought through numerous, but uncorrelated, empirical research and case studies on childhood bilinguals. This thesis attempts to view several of these studies in relation to each other with the intention of extrapolating general principles and concepts, within the field of child language acquisition literature, that apply to the simultaneous learning of two languages.

The main criterion for choosing these studies is that they specifically deal with infant bilingualism, or children exposed to two languages since birth. Moreover, the relative strength of each linguistic environment is equal or near equal to what a monolingual would experience. These studies stand in contrast to other reports on childhood bilingualism, where the child having already come into contact with one language is later exposed to another, adding a second language to his repertoire. Finally, each of the studies analyzed here develops

certain linguistic and psychological principles that are confirmed or contradicted by parallel studies dealing with the same issues. In other words, there does exist a general underlying pattern within the vast amount of empirical research, but it requires closer analysis and consolidation of relevant studies to bring this problem to the surface, which is exactly what this thesis purports to do.

An Overview of the Sources

A thorough survey of prevailing literature on childhood bilingualism can be found in an article by Redlinger (1979) to which much of this overview is indebted.

The first significant study on a child's simultaneous acquisition of two languages was by Ronjat (1913) who traces his son's learning of French and German through age 4 to 10. Ronjat set up a linguistic environment for his son based on the principle that the separation of language by person would greatly reduce the potential for confusion in the child. This implied that within the home setting the persons involved (mother, father, household help, etc.) consistently would each speak only one language, and would not allow for switching between languages in their intercourse with the child. Thus, the child would accustom himself to being addressed in one language by one set of people and conversely, the other language by a second set of people. As a result of abiding by this formula, Ronjat noticed that the awareness of dealing with two languages developed early in his child, who was able to satisfactorily execute parallel development in phonology, morphology and syntax. Ronjat claims that from the initial stages of language

formation, his son seemed to be acquiring two distinct articulatory systems. With regard to lexicon, in the early stages a common repertoire of word pairs with identical meaning existed in each of his two languages. Ronjat, however, does not deal extensively with syntactic development.

Pavlovitch, in 1920, published a book describing his son's acquisition of Serbian and French. The child was exposed to Serbian, the parent's language, and French, the language of household domestics and friends. This study, again, highlights the formula of language separation through environment or person, although the comparative language exposure for the child was less balanced than in the Ronjat case. Serbian gradually became the dominant language because of its stronger ties to the home environment. Pavlovitch also reports phonological and lexical development consistent with Ronjat's findings.

Emrich (1938) reports the bilingualism of her daughter from the period of infancy to two years. The languages included German, spoken by the parents, and a Slavic language, spoken by the nursemaid. Emrich reports that the child was able to articulate sounds correctly in both languages, with the exception of some sounds (i.e. "r") which Emrich attributes to common developmental delays in most children. The child's vocabulary was comprised of an equal number of words from both languages, as well as some compromise or mixed forms which began to appear as early as 18 months of age.

Perhaps the most complete record of child language acquisition is that of Leopold (1939-1949) who authored a series of four volumes

describing in detail phonological, lexical, morphological, syntactic and semantic development of his daughter's learning of German and English. Hildegard was brought up in a dual language environment where the father spoke German and the mother, English. This study is a structured attempt to follow the formula of language separation by person, which Leopold recognized as a significant factor in effective language development. The first volume concentrates on vocabulary growth, where the author describes meticulously phonetic, grammatical and semantic development of every English, German and nonstandard word. The second volume is devoted to phonology in a thorough analysis of vowels, diphthongs and consonants. Hildegard had one phonological system for German and English during the first two years, but began to gradually differentiate during her third year. Volume III deals with syntax and morphology; sentences are analyzed for form, length and structure. Leopold also discusses the bilingual aspect of his child's learning situation. The final volume contains his diary entries for both his daughters, Hildegard and Karla, the former from the age of 2 to 15 years, and the latter from the age of 2 to 8 years. The distinctive nature of Leopold's work is that as a case study, its detailed and intelligent analysis serves as an invaluable resource for information on not only childhood bilingualism, but also on child language acquisition in general.

Burling (1959) describes the bilingual development of his son in English and the Tibeto-Burman language of Garo. Burling records the phonological, morphological and syntactic growth of his child through ages 1; 4 to 3 years. (Notational convention: years; months.) This

study deserves careful attention for two specific reasons: (a) unlike the other studies, the child is dealing with a non-Indo-European language and (b) there is no clear separation of language by person. Burling does note, however, the familiar phenomena of an awareness of language separation for the child between ages 2; 3 and 2; 9.

Another parental article on early bilingualism is an anecdotal report by a University of Belgrade Professor, N. R. Dimitrijević (1965), of his son's acquisition of Serbian and English from infancy to age seven. Although the parents maintained a separation of language, lexical transference in both directions was apparent. This study, moreover, demonstrates the fact that strong linguistic environment for one language will lead to the dominance of that language in the child's repertoire. The child began to have Serbian playmates; consequently, his English began to lag behind and he displayed a preference for Serbian.

Von Raffler-Engel (1965) reports the early linguistic development of her son. The child was addressed in English by his American father and in Italian by his mother. Until the age of 2; 8, the child seemed to have developed a passive knowledge of English, without ever attempting to speak it. The author notes language transference on all levels, with the child being most aware of transference only on the phonological level. By the age of 4, the child reportedly exhibited the ability to translate. The significance of this translation was that the child conceived the message as a whole rather than as a linguistic sequence. Moreover, effective translation occurred only when words and concepts

had acquired individual meaning for the child and the need for memorization was replaced by a feeling for the language itself.

A singularly interesting report is that of Martin Murrell (1966) who records language development of his child, initially exposed to a trilingual environment. The mother spoke mostly Swedish and the father spoke partly Swedish and partly English to the child. The child was exposed to Finnish by a babysitter and later in a daycare situation. Besides keeping a comprehensive list of the child's vocabulary, Murrell significantly concludes that, "Mastery of the separate grammars comes slowly to one brought up in a multilingual environment" (1966, p. 32).

Imedadze (1967) describes her daughter's simultaneous acquisition of Russian and Georgian. Having brought up the child on the principle of separation of language by person, Imedadze notes that initially (until 1; 8) the child indiscriminately addressed adults in either language. Only after age 1; 8 did she mix phrases less and less often and address adults more consistently in their own respective languages. This author also makes a significant comparison with monolingual acquisition in that the "sequences and periods of mastering grammatical forms by the bilingual child . . . only partially coincide with the corresponding development of monolinguals."

Along similar lines of bilingual - monolingual comparison, Mikeš and Valhović (1966) and Mikeš (1967) report on the simultaneous acquisition of Serbo-Croatian and Hungarian by two girls from ages 1; 4 to 2; 10. In addition to inter-child comparisons, acquisition patterns

are compared with a monolingual child observed over the same age span. The author's observations take into consideration not only individual acquisition contexts, but also the sociolinguistic environment.

Another study that establishes systematic development of the individual languages of bilinguals is that of Mazeika (1971, 1973). Mazeika compares a child's developmental course for two separate languages, Spanish and English, with Weir's (1962) analysis of the English monologues of her monolingual son. Mazeika finds that the comparison of the three linguistic systems reveals similar developmental sequences of grammatical features, as well as a striking similarity in sentence patterns, although the monolingual child demonstrates slightly greater versatility in his syntactic repertoire.

Possible similarity of language acquisition patterns between monolinguals and bilinguals receives substantial emphasis in the works of Swain (1971, 1972a, b) and Swain and Wesche (1975). Swain's main hypothesis is that the child begins with a single set of rules in language learning in response to his or her linguistic environment.

Padilla and Leibman (1975) have also investigated the rate of acquisition of vocabulary, syntax and morphology of bilingual children in their separate languages and have compared those rates to rates of monolingual speakers of both languages.

Lindholm and Padilla (1977a, b) have shown that bilingual children learn to differentiate the rules of each of their two language systems at a very early age. These studies, again, demonstrate that the acquisition of bilingualism proceeds in much the same manner as the

acquisition of a single language.

Bergman's (1976) analysis of her daughter's acquisition of Spanish and English concentrates on the nature and causes for linguistic interference. Bergman believes that the phenomenon of interference is not due to the child's inability to distinguish two separate systems; rather it is a direct product of the linguistic input of the environment. Bergman emphasizes the development of independent systems, which is not much unlike that of a monolingual situation. A bilingual child also is equipped with such language learning strategies as overgeneralization, which is at times wrongly interpreted as linguistic interference.

Bilingualism and cognitive development is the topic for an article by Ianco-Worall (1972). The author, in a study of 30 Afrikaans-English bilinguals, compares her results to Leopold's observations on the earlier separation of word sound from word meaning by bilinguals.

In similar experiments, Ben Zeev (1977a, b) examines the cognitive abilities of bilingual children and how they might conceive language as a vehicle for meaning. She also discusses language strategies of bilinguals which help them resolve interlingual interference.

Neither the Ben Zeev nor the Ianco-Worall studies deal with infant bilingualism per se, but their value lies in their potential for unravelling psychological principles of language and cognition underlying bilingual language acquisition.

A brief survey of the literature thus reveals that infant bilingualism found initial prominence in the case studies by linguists of their own children. The crucial issues were (a) a determination

whether language manifested itself through a single or dual system, (b) an investigation of whether the child was aware of 2 languages operating in his environment, and if so, at what point does this realization come through and (c) a systematic classification of types of linguistic interference according to situation, context and developmental stages. Successive studies have expanded into the areas of comparing monolingual and bilingual acquisition patterns and examining cognitive development and language strategies of bilinguals. The single recurring theme in all these studies is the bilingual's particular mode of manipulating language structures in his growing awareness of the very function that language plays as a means of communication and expression. The major emphasis of the remainder of this thesis is to make explicit those common theoretical principles that seem to emerge consistently in the case studies, regarding the bilingual child's language acquisition strategies and ultimate language output. Heretofore, those studies have not been analyzed from such a perspective for such a purpose.

CHAPTER II

The learning of language for a child involves the intricate process of combining sound and meaning into a linguistic system, corresponding in its essential nature to the adult system. This linguistic system will comprise an articulatory capacity, the ability to combine sounds meaningfully into words, and the potential to effectively sequence words into phrases and sentences, rapidly approaching adult competence. Bar-Adon (1971) aptly reflects on the child's sensitivity to the very nature of language structures:

"It is indeed remarkable how fast and how independently the little child manages to perform (the) enormous mental task of language acquisition even before he is capable of carrying out other complex mental or intellectual tasks. Evidently, the child should be credited with a capacity for analysis and internalization, since he obviously does not learn by rote and merely duplicate the sentences he has heard, but rather he seems to be extracting the rules of the language he is exposed to and creating for himself a set of rules, a grammatical system possessed by the speakers around him."

The child's exposure to language in terms of duration, variety and manner will necessarily determine his ability for mastering the rules and ultimately producing conventional language forms. In the case of the bilingual child, however, the situation is slightly altered. He is exposed to not one linguistic system, but two. He has two phonological,

lexical and syntactic systems through which he can comprehend and convey single concepts and actions. The simultaneous acquisition of two languages necessarily implies that the child grows up with the notion of using differential labels converging on single meanings. The crucial question that intrigues linguists and psycholinguists alike is whether the child consciously realizes that he is operating from the basis of two separate linguistic structures or not. Does the child's language emerge as a conscious separation of two languages or does it develop as a single system incorporating linguistic elements of both languages? Finally, what are the linguistic stages through which a child passes in order to acquire his two languages? And, what are the strategies used by the child during the acquisition process? The answers to these questions can be sought in a systematic survey of case studies on infant bilingualism, as is the purpose of this thesis, even though the original case reports do not often explicitly develop such answers.

A Hybrid System

Common findings in the several case studies analyzed point towards language mixing in the initial stages, i.e. the child's communicative repertoire consists of borrowings from each language to form a single unified system. Leopold (1939-1949, Vol. III, p. 175), in his summary of his child's bilingualism, notes, "She constructed a unified linguistic medium of her own out of the bilingual representation. The separation of the languages belonged in her case to a later stage." Hildegard,

consequently, did not associate the two languages with definite persons. As late as 1; 11, she directed German words to English speakers and vice versa. Her sentences were mixed of German and English words. Instances of lexical conflict between two language models emerged in her active reproduction of a word from one language even though the synonym from the other language was familiar, too. For example, she learned to use "hot" at 1; 4. At 1; 5 it was replaced by heiss occurring only recurrently. Similarly, the English "all" and German alle were acquired in alternate fashion; but in this case, the German form became more firmly rooted. Again, "wet" and nasse underwent a similar struggle in the child's vocabulary. A more definite example of language mixing occurred when she combined the English "all" with nasse to form "all nasse" corresponding to "all wet". This last instance seems to re-emphasize the fact that Hildegard did not attempt to keep "the two languages apart"; rather she "built a hybrid system" out of the elements of both (Leopold, 1939-1949, Vol. III, p. 179).

Volterra and Taeschner (1978), whose reports corroborate Leopold's observations, try to ascertain a cause and source for lexical mixing. They collected data from two sisters who were exposed to two languages (Italian and German) from birth. Monthly recordings of 30 minutes each in an alternate language environment were performed. Lisa was observed from 1; 5 to 3; 6 and Guila from 1; 2 to 2; 6. From their results, Volterra and Taeschner concluded that in the initial stages the children developed one lexical system which included words from both languages. However, a word from one language almost never had a

corresponding word with the same meaning in the other language. Like Leopold, they observed that words from both languages occurred in two or three word combinations. Another significant finding was that words from the two different languages with similar meaning acquired separate meanings for the child, ex: là and da. Both mean "there", but for Lisa là represented things not visible at the time of speaking, while she used da for things that were present and visible to her. Conversely, two words with different meanings acquired similar purposes, ex: da and daki (danke). Da is the third person singular of the Italian verb dare - to give. Daki is derived from the German word for "thank you". Lisa used daki for the multi-purpose of thanking somebody, giving something to somebody or getting something from somebody. Thus, Volterra and Taeschner concur with Leopold on the existence of a single lexicon in the initial stages of bilingual language acquisition. Unlike Leopold, however, they found few synonym pairs in the language of their subjects. Even when they did find equivalents (là - da), they were used in different contexts. This would seem to reinforce the theoretical proposition that the languages together form a composite system with the child unaware of the existence of separate systems.

The concept of mixed lexicon is again supported in the case study by N. V. Imedadze (1967). She states that "at the very beginning, words of the two different languages did not coincide in meaning." Only after 1; 2 the child mastered the first pairs of equivalents in the two languages. He began to use Russian and Georgian equivalents side by side, the two coinciding in a single speech act like synonyms of one

language. Consequently, the child's speech began to contain sentences that partly consisted of Russian and partly of Georgian words of different meaning.

A single lexicon is not the only characteristic of this stage in bilingual acquisition. Burling (1959) reports the existence of a single phonemic inventory in his son's learning of Garo and English. As early as 1; 3, "k" and "g" occurring as velar stops in Garo, were incorporated in English. Word final endings, occurring as unreleased in Garo, also appeared in English words like "bed". Although "f" and "v" appeared in Stephen's early phonological development, Burling attributes its eventual disappearance to the influence of Garo where "f" and "v" do not exist.

Leopold (1939-1949, Vol. III, p. 183) notes that the bilingual influences on Hildegard's phonological system were significant, but not unexpected. He found that the phonetic features that distinguished English and German were not yet learned by the child. These include the rounded front vowels in German and dental fricatives in English. Leopold, however, explained that a lack of these sounds may not necessarily be due to bilingual influence. The sounds in question are found to be late in monolingual children as well. Other instances that revealed the possible emergence of a single phonological system included the standard German use of glottal stops before initial vowels. In English, the most striking impact of bilingual representation was Hildegard's use of "l", occurring as flat-tongued in German and as raised back tongue in English. In final position, this resulted in vowel

substitutes of different types, front vowels for German "l", back vowels for English "l". Hildegard often produced the German word alle with the English "l" at 1; 7 and German "l" at 1; 10 (Leopold, 1939-1949, Vol. II, p. 204). Thus, although she treated them as two variants of the same sound, she did not learn to distinguish them functionally during the early period of language acquisition.

In the initial stages then, as these case studies reveal, the child seems unaware that two language mediums are operating in his environment. His tendency to use words that are familiar to him, and words that have specific contextual significance despite the separateness of the languages determines his mode of communication. His main objective is communication, and if words from both languages suit his purpose, "a hybrid system" is in the making.

Yet another characteristic of hybridization, as these case studies reveal, is that it is restricted primarily to the "telegraphic" stage¹ in the child's language development. Single lexical items denote whole concepts, and a combination of highly meaningful words, irrespective of the languages, would serve to bring about a speech act. Hybrid forms thus surface mostly in the lexical and phonological level of language.

¹Roger Brown and Colin Fraser (1963) developed the term "telegraphic speech" under the hypothesis that "child speech is a systematic reduction of adult speech largely accomplished by omitting function words that carry little information." They suggested that children's utterances resembled the language adults use when sending telegrams, where redundant words are reduced, retaining only highly informative substantives which convey the message efficiently.

With the emergence of syntax, however, the child begins to differentiate the separate linguistic systems in terms of their individual patterning and expression of ideas. A parallel occurrence of the sense of language differentiation and the first step towards syntactic development can be seen in Leopold's diary entries. He notes that "combination of two words into one unified sentence began at 1; 7 A start toward syntactic analysis was made in other categories of two-word sentences The pattern subject-verb began at 1; 8, the pattern verb-object at 1; 9" (Leopold, 1939-1949, Vol. III, p. 45). During this period, around 1; 6, Leopold notes that he began to notice slight suggestions towards Hildegard's consciousness of the two linguistic instruments available to her. At 1; 8, upon the challenge Licht aus!, she switched the light off and said, "Light out", (Leopold, 1939-1949, Vol. III, p. 180). At 1; 11 Hildegard's sentences improved in organization and fluency. The dominant language proved to be English because of the English environment. Established German words were inserted in English sentences.

Ex: "(Put) all balls da."

"(Carry) this da down."

"Ask Mama this aus."

"This dolly up Bett."

"Mian up Baun."

"Mehr bathe." (Leopold, 1939-1949, Vol. III, p. 182)

Hildegard also began associating languages by person. For instance, she would sometimes say (Gute) Nacht, Papa, to her father, although her

ordinary greeting was "night-night". These occasional instances, Leopold attributes to Hildegard's passive realization that she was faced with two languages having interchangeable words of identical reference. This, he considers a preparatory stage for the active bilingualism at a later time. By 2; 3-5, Hildegard's consciousness of two languages was more firmly established. She began to ask "what" questions in expectation of bilingual answers. Thus, mother and father were queried for names of the same object (Leopold, 1939-1949, Vol. IV, p. 14).

Recognition of language through person and situation is reported by Burling (1959), whose son, Stephen, began to differentiate the two languages between 2; 1 and 2; 3 years of age. While in a non-Garo speaking environment, Stephen quickly learned who did not speak Garo and rarely attempted to speak to them. Although he spoke little English, he was successfully able to translate exactly what was said in English into idiomatic Garo. Again at 2; 9, he began for the first time to ask explicitly about words. When asked for translation equivalents, he would supply them, provided they already existed in his vocabulary.

In summary, we can say that the first stage of bilingual acquisition involves the compounding of the two languages into a single, homogeneous, self-contained system by the child whose major operating strategy is the need to communicate. A mixed phonological and lexical inventory is the net product. The main criteria for substitution are the familiarity of certain words in favor of the same words in the other language, and the context in which the word was first learned. Again, familiarity stems from the relative strength of the linguistic environment. For

example, Leopold notes that when Hildegard was in Germany, during the earlier months of the second year, German words substantially increased in her vocabulary. In the later months, however, when her English-speaking environment became wider, her production in the language rapidly increased. Burling also notes a similar situation that affected Stephen's English production. The dominance of the Garo-speaking environment, with the mother as the only English influence, determined Stephen's ability to build his Garo vocabulary at the expense of English. Again, having left the Garo hills, Stephen's proficiency in the language also rapidly declined.

Linguistic Interference

The child's awareness of two linguistic systems does not necessarily imply that each language will henceforth develop in complete isolation. Linguistic interference becomes an active learning strategy for all bilinguals in their capacity to differentiate and master the rules and working principles of their separate languages. Weinreich (1953) defines linguistic interference as "instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language." Weinreich accordingly classifies linguistic interference as occurring on the several levels of phonology, lexicon, syntax and morphology, i.e. the structural operations of one language are incorporated in the other language, where those specific operations do not apply. Consequently, a transference of linguistic elements from one language to another will result in the deviation from the standard language norm.

For the bilingual child, despite a basic consciousness of two separate languages, the possibility for language interaction is constant and inevitable. He is faced with the task of not only assigning differential labels for single objects, but also of developing separate structural rules for each of his two language mediums. Grammatical notions of tense, voice, agreement, etc. will have to be formulated conforming to the structural principles of each language. Any deviation or overlapping of rules may constitute negative linguistic transfer.

All the case studies analyzed here report the transference of lexical, phonological, syntactic and morphological items through and beyond the early stages of language differentiation.

Lexicon

Lexical mixing, although contributing towards a hybrid system in the early stages, is not entirely a dormant phenomenon in the succeeding stages of language development. Leopold's diary observes lexical transfer in his daughter's language even up until age 6 (Leopold, 1939-1949, Vol. IV). The insertion of English words in German sentences and vice versa persisted despite a conscious realization of the two language systems. At age 3; 3 she used the mixed construction, "I can't give you any Kuss because I have a Schmutznase." And, again at age 4; 6, insertion of German words resulted in sentences like: "Ich liebe dich so much; I really do liebe dich."

Swain and Wesche (1975) observe lexical mixing at age 3 for Michael whose linguistic environment was estimated to be approximately 60% French and the rest English. Data with regards to lexical mixing include

transference of pronoun ("On a just un pour me."), nouns ("Bouteille is gonna break."), verbs ("Toi tu see. She vide that."), possessive adjectives, demonstratives, prepositions, conjunctions and question markers. Nouns, however, were seen to be the most common substitution items. In trying to attribute a cause for lexical mixing, Swain and Wesche hypothesized that in approximately one-half of the cases, Michael knew the equivalent word in the other language. In other instances, the substitution of a word may have been due to an occurrence of it in a preceding statement. They suggest that one cause for this type of linguistic "interaction" may be "increased availability of an alternative item in another language in the memory trace" which may have led to a "short-cut" of "normal lexical retrieval".

A similar conclusion is arrived at by Lindholm and Padilla (1977b) who tested 5 Spanish/English bilinguals between the ages of 2; 10 and 6; 2. They found that among the lexical mixes, nouns were the most common insertions. They also ascribed causes for transference to an absence of lexical entry in the appropriate language in use. Mixing, they concluded, may have occurred due to one word being more salient than the other, i.e. the child may have been more familiar with that word than the corresponding word in the other language.

Oksaar (1975) proposes yet another reason that determines lexical interference. In her study of her Swedish-Estonian bilingual child, she found that lexical interference followed the principle of simplicity. For example, the case in which the Estonian word could be chosen (näpistama, to pinch; näpistan, I pinch), the chosen Swedish word (nu:pan) was short.

The notion of phonetic simplicity as an operating strategy is observed by Leopold. Hildegard, at the age of 1; 3, learned ja, tried "yes" at 1; 4, but decided in favor of ja at 1; 5, probably for phonetic reasons. Leopold (1939-1949, Vol. III, p. 183) notes that the exact imitation of the German form was more satisfying than the reproduction of the English word without the final fricative.

The importance of context and strength of linguistic environment is also a constant factor in determining choice and use of words. Oksaar (1975) considers the influence of topic and situation in mixed utterances like: Svenni ei 'måste' (Swedish) minna magama. (Svenni does not have to go to bed.) 'Måste' was used earlier by a Swede: Svenni måste gå och lägga sig. Moreover, where he normally called himself "Nenne", the use of Svenni is again a mark of the influence of the situation.

Lindholm and Padilla (1977b) find that when there was a similarity in words, frequently only one was actively used. They hypothesized reasons for this as (a) the child may have been first exposed to the English pronunciation and hence made use of it more consistently and (b) the higher frequency of the usage in the environment may have served to make it the dominant lexical entry.

The phenomena of the prevailing linguistic environment having much impact on the child's choice of vocabulary are observed by Leopold. When Hildegard's English-speaking environment became wider, English elements in her vocabulary multiplied. Consequently, while speaking German, a loss for a lexical item would inevitably lead to an insertion

of English words.

Syntax

Unlike lexical transference, which predominantly consists of a substitution of individual items, syntactic and morphological overlapping between languages involves complex problems of rule adherence and violation. Bilingual children, once they have grasped the basic grammatical format of each of their languages, are faced with the tasks of keeping them apart and assigning appropriate morphological and syntactic markers for lexical items. In the process of achieving this sense of language discrimination, syntactic transference exists as an inevitable product of the learning stage. The points of major interest in this section are (a) examining the kinds of interference that can be expected during the period of early differentiation and (b) examining possible causes for this interference.

Lindholm and Padilla (1977b) observed language mixing not only on the lexical level, but also on the phrasal level of language production. Among the samples they collected, they found that English nouns were inserted following either an article or demonstrative in Spanish sentences. Moreover, in Spanish phrases, there exists gender and number agreement between the functors and the noun. They found that the children's choice of number agreement was always correct, but the gender of the functor was not always consistent with the gender of the noun. Upon examining their samples, they suggested two possible criteria for the gender selection of functors by their subjects: (a) selection according to natural gender (i.e. "lady" - feminine; "boy" - masculine)

and (b) nouns with ambiguous genders were preceded by masculine functors (e.g. estos candies, un "rock"). On the phrasal level, the substitutions occurred most frequently at phrase boundaries, and they were found to be less frequent than lexical mixes. A significant observation emerging out of this study was that despite lexical and phrasal mixing, structural consistency of the utterances was maintained. There was no repetition of articles or other sentential information. Similar results have been reported by Padilla and Leibman (1975) and Cornejo (1975).

Swain and Wesche (1975) in their study operate from the point of view that linguistic transference is (a) language mixing (lexical) and (b) language switching (phrasal and sentence boundaries). In addition to the substitution of isolated words (cf. pp. 20-21), Michael switched languages in mid-sentence smoothly, apparently unconsciously, and without translation of what he had said before. Unlike the observations made by Lindholm and Padilla (1977b), however, Swain and Wesche discovered that their subject switched languages not only at phrasal and sentential boundaries, but also within two verb elements or between a main verb and an infinitive in a single phrase. From their data, they concluded that language switching occurs "at every constituent level from the word up." However, it is more frequent at some points than at others. In this case, it occurred at the subject + noun phrase + verb, and verb + object + noun phrase boundaries. Swain and Wesche also examined the data for an overlapping of grammatical structure between the two languages. They found many grammatically French structures composed of English lexicon, but few in which the structure was English

but the lexicon was French. Examples of French structure include: "You got little finger, you?" (pronoun apposition), "I think Marcel want not to listen." (negation), "It's what you said?" (wh-questions) and "That's to me?" (possessives). Swain and Wesche conclude that although structural consistency is ultimately achieved, it is gradual and preceded by lexical consistency.

A similar phenomenon of structural interaction is reported by Volterra and Taeschner (1978). They remark that in the second stage of bilingual acquisition, after the child has distinguished two lexicons, he applies the same syntactic rules to both languages. Their subject, Lisa, used constructions that had a completely different structure in German and Italian. For example, she used the same strategy in both Italian and German to express possession (Guilia Buch. Lisa bicicletta). Similarly, negation was based on neither of the two systems available to her. Instead she reverted to a construction often seen in monolingual development. Consequently, these authors hypothesize that Lisa constructed a consistent syntactic system of her own composed of two lexicons. It was only in the third stage (after 2; 9) that the two systems were differentiated, although interference still persisted in many instances. Lisa would model her Italian vocabulary on German structural patterns:

Questo è 'di' Guilia libro (German possessive marker lacking, and insertion of Italian preposition di).

Again, an Italian model would serve her German vocabulary:

Lisa will nur 'Schuhe dunkelbraun'. (Adjectives in German precede nouns, but come after the noun in Italian.)

This stage in syntactic discrimination parallels the observation by Swain and Wesche (1975) on structural interaction between the languages.

Possible cause for transference errors is explored by Oksaar (1975) who terms it as "code-switching" or the "alternate use of two languages with or without interference on various levels of language: phonological, semantic, lexical and grammatical." She specifies that on the sentence or discourse level, interference or code switching cannot be explained if isolated from the situation. A purely linguistic interpretation will not suffice in determining the cause for such interference. Instead, the use of words should be examined in the context in which they were first acquired. For example, if the child has been exposed to a word in one language, its subsequent use will occur only in that language even though this item may manifest itself in the syntactic framework of his other language. Thus, Sven first adopted certain forms like moppa to mop, damma to dust and stada to tidy up since they were referred to activities performed by the Swedish household help. They were integrated into Estonian morphology (from 28 months on) when spoken to Estonians about activities at home. When the topic referred to Swedish playmates and their atmosphere, however, the Swedish forms dominated in his Estonian sentences. Oksaar cites several other situational instances where code-switching became the active strategy of the child. She concludes: "When the two languages that he (the child) is hearing are L_1 and L_2 , his repertoire is L_x L_x

contains elements and rules from L_1 and L_2 , as well as elements and rules typical for L_x . They were activated according to the environments of the situation. In certain speech events, L_1 parts dominate; in others, those from L_2 and in still others, autonomous parts of L_x . . ." Thus, Oksaar basically claims that the bilingual child in question was in actuality dealing with three languages - the two separate languages of the environment and at times, a third mixed language not unlike the self-consistent syntactic system that Volterra and Taeschner (1978) mention in their study.

The influence of situational context on syntax transfer is well apparent in Hildegard's speech. Leopold found that the English-speaking environment determined the grammatical structure of many of her German sentences. Thus, he notes constructions like this at age 3; 7: Ich wills dich zu komin 'rauf mit mir. (I want you to come up with me.) Hildegard renders "come up" as an infinitive which is impossible in German. Leopold (1939-1949, Vol. IV, p. 40) also notes that in the weaker language, vocabulary is the most remembered item. Hildegard's German constructions, however, drastically improved during a short sojourn in Germany.

Morphology

The best evidence of morphological transfer between languages is available in Burling's study (1959) of his son's acquisition of Garo and English. Since Garo is predominantly a morphologically ordered language, Burling notes that the learning of morphology in Garo takes place earlier than the morphological processes in English. In fact, he

proposes that "Garo morphology, . . . has somewhat the character of syntax in the European languages." In other words, unlike in English, the learning of morphology may necessarily precede the learning of syntax in Garo¹. Stephen's morphological development in Garo, thus, was considerably advanced. At 1; 7 he began to use utterances consisting of more than one morpheme. He consistently used morphological markers with only Garo words, but fitting English content words, like nouns, in Garo constructions. For example, in ana tolet nana (I need toilet), there exist four morphemes. Although the word order, morphology and phonology are completely Garo, one word "tolet" is derived from English.

The ability to keep morphological interference at bay was not completely achieved by Hildegard. Although morphological usage appeared only after age 2, Leopold noticed several instances of negative transfer. At age 2; 1, Hildegard's German infinitives consistently lacked suffixes. Again, English influence was apparent in pluralization of German forms like Briefkastens and "big Manns like you." The morphological structure of the dominant language, thus, was imposed on the less used one.

A detailed examination of the case studies that observe linguistic interference provide us with some general principles as to the nature

¹Burling apparently would question the following statement made by Leopold (1971): "In the field of grammar, syntax comes before morphology. The student of child language becomes very conscious of the fact that the morphological devices are a luxury of fully-developed languages. The small child gets along quite well without them for a short or long time."

and reasons for the existence of these phenomena. Language interference generally takes place after the differentiation period when the child is still in the process of discriminating lexical, syntactic and morphological systems for each of his languages¹. Lexical interference reveals that nouns were the most common items to be substituted. Moreover, there is a tendency that the dominant language will, at times, provide the syntactic framework for the vocabulary of the less dominant language. The possible causes for lexical substitution include (a) the immediate context, where the child uses a word previously encountered, (b) the easily retrievable quality of the word in question, where familiarity leads to saliency in word choice and (c) the context in which the word was first acquired, where through a form of association and personal experience, the child adapts to it and is willing to use it more readily.

On the syntactic level, the findings among the case studies vary. Nevertheless, common theoretical propositions can be extracted; namely, (a) the dominant language will influence the syntactic structure of utterances in the less dominant language, (b) language switching occurs, for the most part, at the constituent levels of phrase and sentence boundaries and (c) situational context has impact on the use of mixed constructions. Some case studies, however, point to additional aspects.

¹Ben Zeev (1977a) emphasizes a similar point, where she cites Swain (1972a) as saying: "We cannot talk about interference in child bilingualism until after the period of differentiation. That is to say, differentiation is logically prior to intrusion." Ben Zeev also adds that "the child cannot understand his two languages as distinct systems until he has grasped a number of basic structural rules."

Thus, for example, although the child may have achieved language differentiation with regards to lexicon, its syntactic structure may still be in a state of transition. Consequently, the child will operate through a self-consistent syntactic structure of its own, incorporating elements from the two languages he is dealing with. Another interesting observation made by one of the case studies (Lindholm and Padilla, 1977b) was that despite switching at the phrasal levels, structural consistency was maintained throughout the sentence, i.e. functors and content words were never repeated. This seems to suggest then that the child's conception of underlying patterns is much like the adult's, but its manifestation at the production level is subject to ambiguity. Finally, some case studies have sought to determine the reason for language switching in mid-sentence and at sentence boundaries. The answers to this are very similar to the causes for lexical mixing. The original linguistic environment associated with the particular topic or situation will trigger code-switching to that particular language.

Morphological transfer between languages, although it constitutes a major language learning strategy, is not recorded in very much detail in many of the case studies. Although Burling (1959) does relate his son's morphological growth in Garo, he provides few instances of interference problems. Leopold notes morphological transfer at several successive stages, but again the pattern of the less dominant language being subject to the dominant language manifests itself in these instances.

CHAPTER III

The purpose of this thesis is to review several case studies on childhood bilingualism in order to arrive at a set of general principles that seem to characterize the acquisition patterns of children learning two languages simultaneously. So far, I have dealt expressly with case studies as empirical evidence for theories deduced. In this chapter, along with several other case studies, I will deal with research articles, whose main thrust is on developing a relationship between the simultaneous acquisition of two languages and the learning of a single language by monolinguals. The questions raised will primarily concern two aspects of the monolingual/bilingual dichotomy: (a) comparing language specific cognitive abilities and (b) correlating language acquisition rates and developmental patterns of monolinguals and bilinguals. From a pragmatic standpoint, bilinguals, as opposed to their monolingual peers, are constantly faced with the very real problems of linguistic interference, code-switching and a necessity for the autonomous functioning of two independent communicative systems. The crucial idea to be explored in this chapter is whether this additional demand on bilinguals, in any way, retards, restricts, or conversely enhances normal, formative language developmental patterns.

Cognitive Abilities

Earlier, we came across the notion that context formation or a recognition by the child that in certain environments only one language

was the rule gradually enabled him to consciously discriminate the use of his two linguistic systems. We also learned that despite the existence of language differentiation, language interaction persisted as an active phenomenon throughout the early years of language development. This section will elaborate on a similar theme of interlingual interference, but with a view to the subsequent cognitive strategies that the child must adopt in order to master dual language representations for single concepts. In other words, what additional or alternative cognitive and psychological adjustments must the child make to avoid interlingual interference.

An interesting proposition made by Leopold (1971) was that the "effect of bilingualism in general was a noticeable looseness of the link between the phonetic word and its meaning." He arrived at this conclusion after noticing that Hildegard never insisted on exact wordings for her habitual stories. Moreover, she made vocabulary substitutions freely in memorized rhymes and songs. Based on this, Leopold characterized the bilingual child as having the cognitive ability to recognize the phonetic word as a separate entity from the meaning it denoted. That is, bilinguals were perhaps more aware that words, in essence, played a symbolic function for meaning, thus allowing for a tolerance of ambiguity of two referents for single meanings.

Over thirty years ago when bilingualism was seen by many as a cognitive handicap, Leopold regarded bilingual children's semantic tolerance as evidence to denote not negative effects of bilingualism, but its more enhancing and positive benefits: "This separation of word

and meaning may be considered beneficial, because it favors content over form, thinking over verbiage." The old judgmental controversy about the effects of bilingualism is not a concern of this thesis. The importance of Leopold's observation, however, lies in the notion that the bilingual child, more so than the monolingual, learns to concentrate early on the representational function of language, simply because of the necessity to communicate single meanings through the use of dual structures. This concept of early separation of word sound from word meaning has become a growing area of interest for linguists and psychologists, seeking to isolate that cognitive mechanism by which bilinguals overcome interlingual interference in their learning of two languages.

Ianco-Worall's study (1972) of Afrikaans-English bilinguals originated on the basis of a hypothesis similar to that of Leopold. She sought to prove through empirical evidence that bilingualism entailed the development of alternative cognitive strategies in the recognition and learning of language structures. The subjects in this study were divided into three groups consisting of Afrikaans-English bilinguals and two monolingual groups of the two languages. Two separate tests were administered to these children aged between 4 and 9 years. The semantic and phonetic test which she applied sought to determine whether there was attention to meaning or sounds of words. This consisted of orally presenting a set of three words in each language, where two words of the set were phonetically alike, but semantically different, and alternatively, two of the three words were phonetically

dissimilar, but corresponding in meaning. Thus, the subject was told: "I have three words, 'cap', 'can', and 'hat'. Which is more alike, 'cap', 'can', or 'hat'?" The second test was a word substitution test of the willingness to assign arbitrary names to objects, leading to such questions as, "Could you call a dog 'cow' and a cow 'dog'?" The results of these tests essentially supported Leopold's observations on early separation of word sound and meaning. Of the 4 to 6 year old bilinguals, 54% consistently chose to interpret similarity between words in terms of semantic dimensions. That is, despite phonetic similarity, they were not distracted from the meaning that these words represented. An age analysis also revealed that bilinguals brought up in an environment where each member consistently spoke one language, reached a stage in semantic development some 2 to 3 years earlier than their monolingual peers. The results of the second test also yielded some interesting results. Bilinguals excelled over monolinguals in their willingness to interchange names and accept the concept that names are arbitrarily assigned to things.

Another study of a similar nature was conducted by Ben Zeev (1977b). Her approach was primarily from the point of view that interlingual interference forces the child to develop particular coping strategies which in some ways may accelerate cognitive development. This strategy may entail increased attention to verbal input and a necessity to examine language more analytically and intensively than is required in a monolingual. The subjects of this experiment were 96 children divided into 4 groups: one group of Hebrew-English bilinguals in the

United States, a second group of Hebrew-English bilinguals in Israel and two groups of monolinguals of each language. The age range was between 4 and 8 years old. In the first series of tests, Ben Zeev examined flexibility of syntactic rule usage through the Verbal Transformation Test (VTT) and the Symbol Substitution Test (SST). The VTT consisted of a repetition of a spoken stimulus continually fed to the subject by means of a tape loop. The stimuli consisted of nonsense words presented in both English and Hebrew at a rate of 2 per second. The bilingual children were expected to report more verbal transformations because of their heightened sensitivity to changing language sounds and patterns. The SST was along similar lines as those administered by Ianco-Worall. This seven-item task required the child to substitute one meaningful word for another, usually within a fixed syntactic framework. The first two items required only substitution of lexical items. Example: airplane = turtle. Experimenter: "Can the turtle fly?" (Correct answer: Yes.) "How does the turtle fly?" (Correct answer: With its wings.) The remaining five items violated the syntactic framework of the sentence, but the child was to maintain its original structure. Example: I = macaroni. Experimenter: "So, how do you say 'I am warm'?" (Correct answer: Macaroni am warm.) To answer correctly, the child must resist the mutual interference of the substituted item and the sentence frame. It was hypothesized that bilinguals would perform significantly better than monolinguals because of their more analytic approach to sentence structure. They were

habituated by their bilingual condition to provide alternate words for single ideas; consequently, the mythical idea that there is a determined relationship between a word and its referent dissipates early.

The second series of experiments involved assessment of semantic knowledge through the Paradigmatic Association Test (PAT) and the Peabody Picture Vocabulary Test (PPV). It was hypothesized that "bilinguals are expected to have relatively more associations of the paradigmatic type because of a more mature development of the semantic classification system. Words will be associated more in accordance with conceptual categories than in accordance with common speech occurrences." The PPV test compared vocabulary skills between monolinguals and bilinguals. The latter were expected to score low because they had to learn two different labels for any given referent. Therefore, any particular label, because of its distribution between languages, may have occurred less frequently in their experience and be thus less well-learned.

Finally, both sets of children were administered tests of Non-Verbal System Understanding with the Matrix Transposition and Naming of Dimensions Test and the Raven's Progressive Matrices Test. Bilingual children, because of an unusual system of understanding on the level of syntax, were predicted to perform better at non-verbal tasks of perceptual and analytic understanding.

The theoretical propositions put forth by Ben Zeev were for the most part validated in the results she received. Tests concerning syntactic rule usage yielded some interesting results. Bilinguals made

significantly more verbal transformations, reported more different forms and also began hearing them earlier. In the SST task, the bilinguals again were significantly superior - reaffirming the hypothesis that freedom from word meaning and word label is more effectively achieved by the bilingual. Results concerning semantic understanding predominantly revealed that bilinguals were affected more than monolinguals by poor vocabulary. Hence, not only was their performance inferior to monolinguals in the PVT, but they also gave fewer paradigmatic responses than was initially expected. Finally, in the non-verbal system tests, the results did not indicate much group difference, although bilinguals were said to have approached the Raven's Progressive Matrices Test with a more definite problem-solving strategy giving more attention to the possibility of difference and the nature of differences within the set of figures.

Ben Zeev draws two significant conclusions from her detailed study: (a) bilinguals are better equipped to understand the arbitrariness of language structures and (b) bilinguals have an approach to syntax which is highly syntactic and goes beyond the mastery of ordinary syntactic rules. These results again positively correlate with Leopold's initial observation and Ianco-Worall's empirical data.

In a parallel article, Ben Zeev (1977a) develops her earlier hypothesis, but with a view to additional environmental and linguistic factors that influence the bilingual's handling of his two languages. Besides the notion of the bilingual child's heightened analytical ability to language structures, Ben Zeev suggests three other cognitive

mechanisms that the bilingual might use to keep his languages apart:

(a) a sensitivity to feedback cues, (b) maximization of structural differences between languages and (c) neutralization of structure within a language.

Ben Zeev defines sensitivity to feedback cues as ". . . a strategy presumed to involve active scanning efforts to spot cues indicating correctness or incorrectness of present language orientation which then trigger reorganization efforts." That is, the child has to constantly monitor linguistic input, as well as output, as it relates to the environmental situation, in order that he may avoid interference as far as possible. Also, Ben Zeev seems to suggest that the desire to avoid interference lies in the sociolinguistic concerns of remaining within the conventional language framework. Furthermore, "the extent of monitoring may depend in part on the degree of unpredictability he (the child) experiences in his language environment. The less predictable is a language by interlocutor, place, topic, etc., the more sensitive will the child need to be to capture what cues exist." Thus, on the cognitive level of language interaction Ben Zeev would seem to suggest that bilinguals, as opposed to monolinguals, require additional attention faculties in order to successfully interpret and react to the alternate language cues presented to them. On the emotional level, Ben Zeev posits that bilinguals, because of a likelihood of making mistakes as a result of wrongly interpreted stimuli, are more disposed to a sense of uncertainty and anxiety over their linguistic mastery. Consequently, this uncertainty acts as a strong motivation to develop "a

sensitivity of perceptual feedback cues pertaining to language", resulting in more acute scanning of verbal input and output. The environmental constraints acting upon emotional and cognitive faculties become a positive strategy to keep interlingual interference apart.

Another strategy considered as substantially important is the bilingual child's early tendency to overgeneralize within the structure of each of his languages as a means to maximize the difference between the two systems. Ben Zeev cites research in child language acquisition (Ervin-Tripp, 1973; Greenfield, 1971; Selinker et al., 1975) to confirm the various facets of overgeneralization. She suggests that the bilingual child, as a way of keeping his two languages apart, may have more so of a desire to overgeneralize than a monolingual, in his necessity to see each of his languages as consistent systems. Ben Zeev, however, does admit the predominantly speculative nature of this hypothesis, which requires substantial empirical evidence, specifically in the area of child bilingualism.

The final hypothesis forwarded for explicating bilingual strategy in avoiding interlingual interference is somewhat related to the idea of overgeneralization discussed earlier. When transference of words and structures do take place between the bilingual's two languages, the substitute word is often devoid of grammatical markers, resulting in a "neutralization" of the original form. Ben Zeev uses a sample speech from a study by Selinker et al. (1975) of 7 year old French children beginning to learn English. These children often used the infinitive instead of the properly inflected third person form of the verb.

(Quand on faire 'wouf', il entend, instead of Quand on fait 'wouf', il entend.) Ben Zeev considers this instance of syntactic simplification as a positive strategy, where the use of a neutral form (faire) keeps syntactic structure violation at its minimum. Thus, bilingual children, it would seem to suggest, arrive at a kind of compromise form where the child is aware of the transferred item's inappropriateness within the sentence, but reduces its interference element by resorting to neutralized forms. Ben Zeev, again, admits that this proposition requires further research to confirm its validity.

The main thrust of the argument so far indicates that bilinguals develop alternate cognitive and psychological concepts of language functions in order to successfully overcome the problem of interlanguage interference. Primary evidence from Word Substitution tests reveals the possibility that bilinguals may be better able to achieve the separation between word label and word meaning than monolinguals. These cognitive strategies are seen as incumbent to the process of becoming bilingual and, in effect, also an inevitable product of the compromise and readjustment that bilinguals must attain to keep their languages apart. Bilinguals, thus in contrast with their monolingual peers, were found to regard language structures more analytically, with a view to the arbitrariness and reorganizing capacity of linguistic elements. The remaining three hypotheses proposed by Ben Zeev are still within the speculative stage, but hinting at great possibilities for unravelling the complexities of interlingual interference.

Pattern and Rate of Acquisition

Most of the research cited earlier emphasized the notion of interference as a ruling factor in bilingual acquisition. Interference was examined in terms of its tendency to penetrate the several levels of language production. In the previous section, we saw how the inevitable factor of interference obligates the child to resort to alternate methods of cognitively dealing with language systems. Besides the fact that a bilingual has to master two languages, he is also different from a monolingual in that his two languages interact, thus compounding the problem of early language acquisition.

Another branch of research in bilingual language acquisition approaches the problem of interference from a slightly different perspective. Rather than concentrate on its effects and causes, these research studies divert their attention to the particular developmental patterns and rate of acquisition of the bilingual's two languages as it correlates with the learning of a single language. Interlingual interference is seen as incidental to the more fascinating phenomena of viewing the growth of a bilingual's language in the comparative light of monolingual acquisition. Thus, they propose that each of the bilingual's two languages develop separately, much like that of the language of a monolingual. They propose that children learn to differentiate their two languages at an early age, resulting in only a minimum occurrence of actual interference (Lindholm and Padilla, 1977a, b). Consequently, since each linguistic system develops independently, interference is not so much the result of a child's

inability to keep his two languages apart, but an environmental factor that fails to provide proper stimuli in language differentiation (Bergman, 1976). Essentially, the bilingual is seen as in no way different from the monolingual, except in his necessity to acquire two language codes instead of one (Swain, 1971, 1972a, b). Finally, empirical research also reveals that bilinguals acquire grammatical categories and morpheme markers for each of their languages in similar successive stages as that of monolinguals (Padilla, 1978), thus further leveling of differences between these two parameters of comparison.

Lindholm and Padilla (1977a), in their examination of bilingual language mixing and switching in 18 Spanish-English bilingual children, found that despite a categorical emergence of interference on the lexical, phrasal and sentential levels, the actual percentage of interference was only 2½% of the total amount of utterances. Moreover, the reason for interference lay not entirely in the child's inability to distinguish between his two languages, but in environmental factors: (a) the children would switch between languages to test or mock the monolingual experimenter, (b) the child momentarily forgot the word, which is not to say that he lacked a knowledge of the word and (c) the saliency of the word in the particular environment led to its first choice.

A strong proposal for the early differentiation of the bilingual's two languages is forwarded by Bergman (1976) in her study of her child's Spanish-English acquisition. She states that the awareness of two languages, as it emerged in her child's speech, occurred as early

as 10 months. However, at around 2; 3, Mary, her daughter, began using an incorrect form of the Spanish possessive and occasionally this occurred in some English instances, too. Example: Es de papa's. (Spanish does not use |s| morpheme for possession.) "Don't cut mine's." (English possessive |s| is overgeneralized.) Bergman considers her child's deviation from the standard norm as unusual because up until that instance Mary had successfully distinguished the two possessive systems through her production of accurate forms. Although Bergman associates the English error with the child's overgeneralization strategies, often seen in monolinguals, the Spanish error could not be brought under the same category. Mary used the alternate correct form (de + NP) relatively often, so that if she had overgeneralized, it should have occurred in all instances. Bergman proceeds to cite yet another incident that might have been the cause for this sudden transition into an alternate form. Mary came into contact frequently with a couple whose 4-year-old child often used the construction ¿Es Jennifer's?. Bergman takes this as a starting point for exploring the deviant element in her daughter's speech. She formulates a three-point hypothesis which rests on the claim that "language mixing is not necessarily a part of bilingual acquisition." Thus, she proposes that (a) given an appropriate language environment, the child can acquire two native languages in the same manner that he or she acquires one, (b) proficiency in a language is determined by its relative use in the environment and (c) each of the bilingual's two languages will develop independently with the same pattern of acquisition as monolinguals. On the basis of

this, she postulates the Independent Development Hypothesis (IDH) as counter-argument against the traditional notion of a "hybrid system" and successively an "interference" phenomena which was said to distinguish the language of bilinguals.

To support the IDH, Bergman cites several instances to show that the child in no way mistook the identity of her two languages. Concurrently, the structures of Spanish and English were firmly established in the child's speech as she often used the correct form of the possessive, despite an occasional reversal to the incorrect form. She rejects the notion of interference between languages on the grounds that only one element and not an entire possessive system in Spanish was being altered. Besides, if transference was the ruling phenomena, then why did it not permeate the several levels of lexicon, phonology and syntax?

Bergman explains the IDH as correlating with Ervin-Tripp's (1970, p. 314) concept of child learning strategies, as one who "actively strains, filters and reorganizes what he is exposed to." That is, by means of his linguistic environment, the child generalizes and develops strategies for further applications of the rules and norms of usage. Thus, Bergman hypothesizes that Mary may have recognized the use of the morpheme |s| in other conditions within the Spanish system in the forming of plurals and in the copula, and consequently, carried it over into other instances. Bergman also explains this

phenomenon in terms of Slobin's (1973)¹ universals of language acquisition. Occurring at the end of words, the morpheme |s| has perceptual salience. Moreover, the specialized use of |s| is generalized into the other instances. Finally, Bergman attributes the use of |s| to the child's own individual learning mechanism. The child may have regarded the additional morpheme marker as a means of emphasis and hence, used it for additional contextual meaning to her sentence.

In conclusion, Bergman states that in the case of simultaneous acquisition each language develops separately, not unlike monolingual development. Any deviation from the standard norm of the language can be attributed to deficient linguistic input where separation of language boundaries are not clearly demarcated. The child will sort out the separate linguistic systems according to the input he receives.

The theoretical position of viewing language developmental patterns as similar for bilinguals and monolinguals is supported by Swain (1971, 1972a, b) in her research studies. She developed the

¹Slobin (1973) proposed that in all languages, there exists a universal pattern of cognitive development which includes the child's learning of communicative functions, semantic relations and a formal means of expression through syntax and phonology. Based on this notion of a commonality in cognitive and semantic development, Slobin hypothesized that there also exists a regularity in linguistic development. The child will acquire linguistic items according to their relative derivational complexity. Slobin tests this hypothesis in a cross-cultural study of two Hungarian - Serbo-Croatian bilingual girls. He ultimately arrives at a set of operating principles regarding an order of language acquisition. One of these principles is that children pay attention to the ends of words ("perceptual saliency"). Thus, the Hungarian locative, which is expressed by noun suffixes, is learned prior to the Serbo-Croatian form, expressed through a combination of preposition markers and noun inflections.

hypothesis that "bilingualism was merely the general human capacity to switch among codes" (Swain, 1972b), thereby implying that each code is self-consistent and independently constructed. It was within this general framework that the acquisition of interrogative structures by four children who heard English and French from birth was examined. The subjects ranged from 2 years 10 months to 4 years. The main criterion was to determine the order in which yes/no and wh-question structures would be learned. Transformational grammar was used to determine derivational complexity of the items. Swain concluded from her data that when compared with similar research done in first language acquisition, a strong correlation could be seen between monolingual and bilingual acquisition of grammatical sequences. Swain, however, notes that some question structures appeared relatively late in the data of the bilingual children.

A similar study examining the sequence and pattern of acquisition along the monolingual/bilingual parameter was conducted by Padilla (1978) who observed the acquisition order of 14 grammatical morphemes by 18 Spanish-English bilinguals. The children's age ranged between 2; 6 and 6; 4 years. The 14 morphemes examined were similar to those investigated by Brown (1973) and De Villiers and De Villiers (1973) in a longitudinal study on monolingual children. The purpose of this study was to determine whether the apparent invariance in the order of acquisition of the grammatical morphemes was maintained in a sample of bilingual children. Because of a wide age range of children used in the study, they were divided into 3 groups: Group A (2; 6 - 3; 9), Group B (4; 3 -

4; 11) and Group C (5; 1 - 6; 4). Padilla found that Group A most closely correlated with the monolingual data. The other two groups, however, showed less regularity with the comparison group. Based on these results, Padilla concludes that in learning English, bilingual children acquire the 14 morphemes in much the same order as do monolinguals. At the older age level, however, these children may be more susceptible to overgeneralization strategies as a means to keep interference at bay. This correlates with Ben Zeev's (1977a) own notion of overgeneralization as a positive cognitive mechanism that bilinguals adopt to distinguish between their two languages (cf. p. 39).

Another bilingual study, by Padilla and Leibman (1975), aimed at comparing the rate of acquisition by bilinguals and monolinguals. In other words, do bilinguals take the same amount of time to learn grammatical units as monolinguals? Their criterion for comparison was Brown's (1973, p. 54) method of assessing a child's rate of acquisition through Mean Length Utterance (MLU). MLU was used as one index of language acquisition since it increases with age with an increase in complexity of grammatical structures. Padilla and Leibman calculated MLU not only for Spanish (MLU-S) and English (MLU-E), but also for mixed utterances (MLU-M). They also compared the several developmental stages of the bilinguals according to the five developmental stages characterized by Brown (1973). From their data, Padilla and Leibman concluded that children acquiring their language simultaneously acquire their two languages at a rate comparable to that of monolinguals. They found that there was no evidence in the language samples that might

suggest an overall reduced or slower rate of language growth for the bilingual children of this study. Contrasting evidence is, however, available in Swain's study (cf. p. 46) and in a study by Imedadze (1967). She found that the sequence and periods of mastering grammatical forms by her bilingual child only partially coincided with corresponding development of Russian and Georgian monolinguals. She noted that her subject experienced special delay and difficulty in mastering those grammatical forms that basically differ in denoting one and the same semantic relation.

Apart from a comparison between monolingual and bilingual development, Padilla and Lindholm (1976) conducted yet another study, comparing the individual developmental sequence and rate of the bilingual's separate languages. Their purpose was to provide a descriptive analysis of the procedure in which three grammatical structures (interrogatives, adverbs and adjectives) were learned by children acquiring English and Spanish simultaneously. Their subjects were 19 bilinguals ranging from 2; 0 to 6; 4. Proficiency in each of the languages was tested for even distribution. They compared the transformational rules for each construction in both languages, and examined the sequence and rate of occurrence between the languages. Thus, for example, in interrogative formations, Padilla and Lindholm found that Spanish and English underwent more or less the same transformational rules. Both require wh/k-d (Spanish) preposing, and both need inversion of subject noun phrase with verb phrase. They do, however, differ in three respects: (a) Spanish requires a

preposing of prepositions (ex.: ¿Quién hablarás a? → A quién hablaras.), (b) English requires auxiliary verb insertion (ex.: "What you want?" → "What do you want?") and (c) Spanish has an additional rule which requires inflecting the k-d word so that there is agreement in gender (cuánto-a) and number (cuál-es, cuántos-s, quién-es) with the element of the sentence being questioned. A comparison between the language learners elicited the following results: (a) rule for preposing the interrogative was used in both languages, (b) subject non-verb phrase inversion (SNVP) rule was acquired one and one-half years earlier in Spanish and (c) the auxiliary-verb inversion rule in English was acquired simultaneously with SNVP inversion rule. This last instance Padilla and Lindholm regard as one reason for the comparatively late appearance of the inversion rule in English. Children seem to be concentrating on auxiliary verb insertion, so do not apply SNVP inversion until the former is achieved. Finally, among the wh/k-d words, the earliest acquired in both languages were "what"/que and "where"/dondé expressing object and location, respectively. These data correlate with Swain's findings (1972b) in her study of the acquisition of Spanish questions.

Using similar syntactic and semantic criteria, Padilla and Lindholm (1976) examined the emerging sequence of adverbs, adjectives and negation across both languages. The general conclusion they arrived at was that children seem to learn the structures of each language separately. While some structures (adverbs and adjectives) were learned at approximately the same age in both languages, other structures

(wh/k-d) were acquired at different stages because of specific language related complexities in derivational operations. They concluded that bilingual children learn each of their languages separately and do not transfer the structure of one language to the other.

CHAPTER IV

Conclusions

This thesis has examined case studies on infant bilingualism, the simultaneous acquisition of two languages, in order to arrive at some general principles regarding acquisition patterns and learning strategies of children brought up in dual language environments. The main purpose of this thesis is to examine the cases and to make explicit from them a consensus of theoretical positions on the general stages and developmental patterns of bilingual children. These studies have been analyzed primarily from the linguistic point of view, though the psychological and cognitive bearings of infant bilingualism are also considered, especially with reference to the large amount of literature on children learning their first language. The specific linguistic principles that emerge are:

(a) Bilingual children, as a result of two languages constituting their environment, develop a "hybrid system" as their initial mode of communication. This finding implies that because the children have not yet differentiated the separate linguistic mediums in their environment they construct mixed utterances, where elements from both languages constitute a single speech act. The bilingual infant in the early acquisition stage has one phonological and lexical inventory, and he treats his two languages without distinction or an apparent sense of awareness.

(b) Consciousness of the existence of dual linguistic systems emerges sometime in the latter half of the second year. Separation of

languages comes about through context formation, where mother/father, home/community are seen as using separate languages that stand in contrast with each other. Also with the child's gradual transition into the syntactic stage, each of the languages seems distinct according to its particular structural make-up. This does not imply that the child possesses conscious knowledge of the grammaticality of the languages; rather, the differences in expressing ideas through formal syntactic patterns paves the way for a sense of discrimination between languages.

(c) Once the child realizes that he has access to two separate linguistic instruments, his progress is marked by the inevitability of "linguistic interference". Linguistic interference permeates the several levels of syntax, lexicon, phonology and morphology of language recognition and production. This entails the overlapping of one language structure onto another and results in deviation from the standard language norm. Linguistic interference is to be considered as an active learning strategy where the child, through a process of trial and error, comes to recognize the individuality of each of his languages. The case studies examined in this thesis develop certain hypotheses regarding the nature and cause of linguistic interference on the several levels of lexicon, syntax and morphology.

Lexicon

- Lexical transfer or word substitution is the most common type of linguistic interference (Leopold, 1939-1949; Swain and Wesche, 1975; Lindholm and Padilla, 1977a, b; Volterra and

Taeschner, 1978; Burling, 1959).

- Lexical transfer is a direct product of the immediate availability of that word in the child's short-term memory (Swain and Wesche, 1975; Lindholm and Padilla, 1977a, b).
- The preference of a synonym in one language over its equivalent in another language is the result of its being originally learned in a particular context which has high density meaning for the child (Volterra and Taeschner, 1978; Leopold, 1939-1949; Oksaar, 1975).
- The most common types of lexical items to be transferred are nouns (Swain and Wesche, 1975; Lindholm and Padilla, 1977a, b).
- The most frequent type of linguistic transfer from the lesser known language is that of vocabulary (Leopold, 1939-1949).
- Phonetic simplicity between synonyms will determine their ultimate choice in the child's repertoire (Leopold, 1939-1949).

Syntax

- The syntactic pattern of the dominant language will become the framework for the vocabulary items of the less dominant language (Leopold, 1939-1949; Swain and Wesche, 1975).
- Syntactic interference for the most part is systematic, categorizable into lexical, phrasal and sentence boundary transfers (Swain and Wesche, 1975; Lindholm and Padilla, 1977a, b).
- Again, systematicity in syntactic transfer can be seen, where even though vocabulary items are substituted, structural

consistency is maintained within the sentence (Lindholm and Padilla, 1977a, b).

Morphology

- Even though the learning of morphology succeeds syntactic development, morphological transfer is apparent throughout the advanced stages of child bilingualism (Leopold, 1939-1949).
- In some instances, where morphology serves the purpose of syntax, the morphological development of the child precedes syntactic development (Burling, 1959).

The second aspect of infant bilingualism considered in this thesis is that of a relative comparison between monolinguals and bilinguals in terms of (a) language related cognitive faculties, (b) order and pattern of acquisition and (c) rate of acquisition. The first parameter of comparison revealed that perhaps the need for keeping his two languages apart reinforces in the bilingual child the concept that language is but an abstract means to express semantic functions. Because of this capacity to separate the linguistic representation of the word from its meaning, the bilingual child is able to successfully manipulate differential labels for single concepts. The ability to accept the arbitrary nature of language thus constitutes a positive cognitive strategy in the bilingual child who is able to exercise a greater degree of tolerance in his acceptance of dual language structures (Leopold, 1939-1949; Ianco-Worall, 1972; Ben Zeev, 1977a, b).

Along similar lines of bilingual/monolingual comparisons, linguists have sought to determine a correlation of rate and acquisition patterns

between the two groups. Earlier research in infant bilingualism emphasized the notion that linguistic interference existed as an overbearing factor against a regular rate of language acquisition. Similarly, the interaction of two languages was seen as detrimental to normal acquisition patterns¹. The studies cited in this thesis, however, adopt a more innovative view to the traditional comparison between monolinguals and bilinguals. These case studies operated from the principle that bilingual acquisition progresses at similar rates and concurrently in near similar order as that of monolinguals. By means of empirical data, they establish the following facts:

- that children differentiate their languages at an early age,
- that because of the ability to recognize two languages at an early age, the child develops each of his languages independently with little interlingual interference,
- that interference is not so much the child's inability to distinguish between languages as a deficiency in the environment which fails to provide effective language separation stimuli,
- that the commonly universal strategy of overgeneralization that exists in the language of monolinguals is often misinterpreted as linguistic interference in bilinguals,

¹Vernon J. Jensen (1962) has compiled a body of research which emphasizes the negative aspects of childhood bilingualism.

- that comparison of rates of Mean Length Utterance between monolinguals and bilinguals has revealed no significant differences, and
- that comparison of pattern and order of acquisition of morphemes and other grammatical categories again reveals no substantial differences.

The studies reviewed in this thesis do not necessarily encompass every facet of bilingual acquisition. They are restricted to specific linguistic and psychological observations of children growing up in a dual language environment from birth, whose exposure to two languages is in equal or near equal amounts. Those aspects of infant bilingualism that lay beyond the limits of this thesis are:

(a) Anthropological issues of language universals which probe the relative development of each language according to its derivational complexities (Slobin, 1973; Kessler, 1976).

(b) Sociolinguistic issues of acquiring dialectal variations of a single language as it exists in adult discourse (Gumperz, 1967; Hymes, 1967).

(c) Linguistic issues of "whether the total amount of interference between two similar languages is really greater than between two dissimilar ones, and what are the differences between the mechanism of interference of related and unrelated languages" (Vildomec, 1963).

(d) Psycholinguistic issues of language competence and performance, and the effect of bilingualism on intelligence and mental achievement (Lambert, 1977).

(e) Neurolinguistic issues as to the functioning of the language learning faculty in the brain in its ability to absorb and ultimately adjust to two language systems (Penfield, 1965).

In conclusion, the real profit in examining dual language acquisition patterns and processes lies in its potential to reveal not only the child's general capacity to learn languages, but also his infinite flexibility and resourcefulness that enable him to adjust to the vast complexities of his linguistic environment. This thesis attempts to shed light on one aspect of this fascinating phenomenon of bilingual language acquisition.

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