DOCUMENT RESUME

ED 110 537 UD 015 342

AUTHOR Riegel, Klaus F.; Freedle, Roy
TITLE What Does it Take to be Bilingual or Bidialectal.
PUB DATE 74
NOTE 34p.; To appear as a chapter in D. Harrison and T. Trabasso, Eds.: "A Seminar on Black English," Hillsdale, N.J., L. Erlbaum Associates, 1975

EDRS PRICE MF-$0.76 PLUS POSTAGE. HC Not Available from EDRS.
DESCRIPTORS *Bilingualism; Educational Needs; *Educational Problems; Language Development; Language Handicaps; Language Research; Linguistic Competence; Linguistics; *Negro Dialects; *Negro Youth; *Psychological Studies; Standard Spoken Usage; Structural Analysis; Structural Linguistics

ABSTRACT

The express purpose of this presentation is with education and the technology of training strategies which relate to the conditions under which any two language systems are to be learned. It is assumed that Black English is structurally different from Standard English. It is concluded here that although the burden upon bilingual children is heavy, they are advantaged in a higher sense because monolingualism is a true form of cultural deprivation. However, monolingual development ought to be carefully studied in order to find the best route and methods for optimal progression in bilingual development. A form of bilingualism constituting reasonable and efficient conditions of progression can only be established through detailed explorations of semantic, interlingual structures. At the present time, it is noted, such explorations are lacking. If raised under optimal conditions, the "independent" bilingual becomes able to transfer a large share of his first language knowledge to his second language. The "confounded" bilingual is still not much assisted, however. It is advocated that, regardless of whether black and white English dialects are linguistically sufficiently distinct, for the benefit and well being of many ghetto children living in a confounded linguistic environment, the two systems ought to be treated as such. (Author/JM)

What Does It Take to Be Bilingual or Bidialectal

Klaus F. Riegel
University of Michigan
Ann Arbor, Michigan

and

Roy Freedle
Educational Testing Service
Princeton, New Jersey

To appear as a chapter in D. Harrison and T. Trabasso (Eds.), A seminar on black English. Hillsdale, N. J.: L. Erlbaum Associates, 1975.

What Does It Take to Be Bilingual or Bidialectal

Klaus F. Riegel
University of Michigan
Ann Arbor, Michigan

Roy Freedle
Educational Testing Service
Princeton, New Jersey

In the following presentation we will consider Black English to be a structural system distinctly different from Standard English, and we will maintain this supposition regardless of whether we are considering spoken or written language and whether, in addition, we prefer to regard northern, southern or British English as different language systems or not. As we hope to make clear, our concern will be exclusively with education and the technology of training strategies which relate to the conditions under which any two language systems are to be learned.

Provided that we understand Black English to be structurally different in phonology, syntax, and lexicon, there remains the additional question whether psychologically the dialects are or can be unified, partially overlapping, or distinct cognitive systems. Labov (1972) has shown that structural rules which govern contraction and deletion of Standard English have a close relationship with structural rules of contraction and deletion in Black English. One must not be misled here into overgeneralizing the import of such a correspondence. Psychologically, a language user who knows both dialects may cognitively separate these two dialects as functional systems in spite of the demonstrated linguistic correspondences. Indeed, Hall and Freedle (1973) and Freedle and Hall (1973) have analyzed sentence imitation data obtained from Black and White children wherein both groups were presented with sentences representing Black English and Northern White English and found correlational patterns within and across the two dialects indicating that these dialects operate as coherent and

somewhat separate systems. However, across dialects they detected either no influence (zero correlations), some positive overlap in the systems (positive correlations), or cognitive interference effects (negative correlations) depending upon the particular grammatical structures which were examined. One could not have deduced these psychological patterns from knowledge of Labov's rules of grammatical correspondence. Thus, issues need not be tied just to linguistic analyses and the topic of cognitive processing which are raised in the next sections have special import of their own for psycholinguists working in the area of subcultural sociolinguistics.

Earlier Research. At the present time, minority groups of Blacks, Chicanos, Puerto Ricans, Orientals, and Native Americans represent the largest contingents of bilinguals in the United States. There exist, however, small groups of bilingual children from homes with relatively high educational and economic levels. These are the children of professionals who have emigrated to this country and found it advisable to raise their children under bilingual and often bicultural conditions. Needless to say, both groups of bilinguals are psychologically and sociologically far apart from one another. These differences have been brought about by unequal educational and economic opportunities.

In the past, notably during the 1930's, a considerable number of psychological investigations were conducted with bilingual children (see McCarthy, 1954). A few reports on the well educated children of the latter group have provided insights into the compatibility of two linguistic systems and about some psychological problems in processing such information (Leopold, 1939-1949). The bulk of research was conducted, however, on children from minority groups, mainly in New York, Philadelphia, Los Angeles, and Hawaii. They raised the possible interpretation that serious deficiencies existed not only in the

use of language via middle-class norms but in other psychological skills as well. In the interpretations, the sociolinguistic basis of psychological performance was rarely emphasized with sufficient strength. The research was all too often restricted to sets of purely psychological variables operating in a context-free vacuum and, subsequently, overgeneralized and misleading conclusions were drawn about the lack of motivation, ability and intelligence of these children.

A more instructive and positive approach has been used and, subsequently, more positive results have been obtained in recent studies of French-English bilinguals in Canada by Lambert and his associates (Lambert, Havelka & Crosby, 1958; Lambert &Tuckers d'Anglejan, 1973). Although differences in educational and economic opportunities seem to exist between Canadian subgroups, these differences are not as large as those between the minority and majority groups in the United States.[1] Their results, briefly, indicated that the cultural conditions under which the two languages were learned affected the cognitive organization of these systems and this structural difference in turn affected psychological performance. Thus their work raised the possibility that differences were due to cultural-historical differences. Further below we will refer in greater detail to some of the studies of French-English bilingualism.

The work of Lambert and his colleagues supports the view (see Riegel & Riegel, 1972) that the consideration of psychological factors in a cultural-historical vacuum leads to fictitious constructions which are, by and large, of little value both for gaining knowledge in sciences as well as for helping children gain knowledge of their world. In the following presentation, we will emphasize that psychological constructions stem from linguistic interactions in the physical-social environment. Before we can sketch this theory

two major comments are necessary, the first addressed to the social basis of language, the second to the structural properties of the linguistic system to which the growing child is being exposed.

Social Basis of Language. Languages do not exist as isolated entities such as in the form of a single grammar, but as collections of repertoires which have appropriate occasions (setting, topic, social status of the respective speakers and listeners) for their realization in speech or other communication modes (Ferguson, 1973). The speech community defines optional and obligatory modes of communication -- each repertoire has its phonology, syntax, and semantics as well as psycho-social rules to observe to appropriately fulfill its special social functions. The study of the interconnection between formal linguistic system and its realization in the social setting is sometimes referred to as the ethnography of communication (Gumperz & Hymes, 1972). Psycholinguists have yet to examine many of these psycho-social variables in their construction of a relevant foundation for examining cognitive problems in the choice and use of various speech repertoires (Freedle, 1973). This paper is an attempt to construct a theory which examines some cognitive consequences of a language user who must learn one or several dialects of the same basic 'language' or must learn two languages (such as English and German).

Subcultures define different settings for language usage, i.e., select a dialect which is judged appropriate to the condition. The majority culture as distinct from its minority subcultures may define different settings for language usage. This difference is one possible source of a mismatch which can lead to misunderstandings. Such a mismatch can lead, for example, to the assignment of a "wrong" answer, as in a formal testing situation, when the majority culture 'evaluates' a response of a member from one of the minority subcultures.

In addition to the differences in social setting which lead to a different selection from the speech repertoire, there is a difference in cognitive load across subcultures. Members of subcultures must usually learn two or more 'distinct' dialects in carrying out their full range of communicative encounters within and outside of their community. Thus they may have a larger linguistic repertoire to learn and select from whereas members of the dominant culture need not learn an additional dialect. Moreover, long suppressed rage at the injustice suffered by the minorities will affect their willingness to achieve competence in the dialect used by the oppressors, and thus the cognitive load does not merely reflect the size of the linguistic repertoire but also the emotional stress produced by the social forces operating in the exercise of speech choices. Subsequently, the concept of cognitive load implicates all prior issues -- that of speech repertoire, speech community and appropriateness of choice, social matches and mismatches within and across speech communities, and operations which seek to resolve these forces when they arise.

Properties of Structural Systems. Structures are based upon relations; elements alone do not provide structure but mere conglomerates. Stronger yet, relations are prior to the elements which they connect. To use a simple example, we always transmit information about relations, never about elements alone. We will tell the child that "A rose is a flower," thereby implying the relationship of class inclusion, or we point at the picture of a rose and pronounce its name, thereby implying an extralingual relation between an object and a label.

Extralingual relations which are tying labels to objects (rose), actions (run) or qualities and affects (good) provide the foundation for language and language development but do not allow for detailed elaborations of language structures. For this purpose, intralingual relations are implemented which

connect different labels to one another. In most situations, we are not able to point at an object when we label it but explain it by saying, for example: "A rose is a flower with thorns and a beautiful smell." A structural analysis of such a statement (see Riegel, 1970 a, b; Riegel & Riegel, 1963) would propose that at least the following major intralingual relations are involved: ROSE → FLOWER; ROSE → THORNs; ROSE → SMELL; BEAUTIFUL → SMELL. The identification of the meaning of the word ROSE requires the listener to intersect these relations at their shared term (i.e., at ROSE but also at SMELL). Although many additional relations (and terms) will be brought to bear upon his structure of meanings, the simple network described by the relations mentioned above provides basic information for distinguishing roses from other flowers and other objects and events.

As the child hears statements like the one above and those describing, for example, other flowers, he will also learn to abstract classes from the relational information received. For example, he will recognize that not only roses but also tulips, dahlias and carnations are flowers. The intersection of the relations ROSE → FLOWER; TULIP → FLOWER; DAHLIA → FLOWER and CARNATION → FLOWER represent the necessary, though by no means sufficient condition for the recognition of classes (linguistic and otherwise).

The identification of elements, such as words, and the abstraction of classes from the relational information given describe two of the most basic cognitive operations for language and language development. Perhaps caused by the preoccupation with the mechanistic notions of verbal learning and elements, such as the nonsense syllable, or by the intoxication with abstract linguistic conceptions, such as with Chomsky's syntactic structures, little attention has been given by psychologists to the acquisition of meanings in natural language communication in various psychological and social contexts. Belatedly

and still insufficiently, some emphasis has been given to these issues in the study of first language acquisition by Bloom (1970, 1973), Brown (1973), Schlesinger (1973) and in the study of learning and memory by Kintsch (1972) and Rummelhart, Lindsay and Norman (1972). In addition there is some earlier work which has dealt with denotative meaning in general (Riegel & Riegel, 1963) and different strategies for the identification of words and semantic classes by children differing in age (Quarterman & Riegel, 1968; Zivian & Riegel, 1969).

Our semantic interpretation can be summarized by the schema of Figure 1

Insert Figure 1 about here

---

showing the three terms serving to identify the word ROSE and the four terms serving to abstract the class label FLOWER. According to the interpretation promoted here, the child acquires information represented by the cells of the matrix. Only after he has received a certain amount of such relational information is he able to move conceptually toward elements that designate the columns (or rows) of the matrix in order to identify individual words, explicate their meanings and abstract semantic classes. In his own speech, the child will, of course, at first produce single word utterances, but this merely indicates limitations in his performance by which part of the intended relations remain suppressed. For example, the child will say the equivalent to MILK but from his actions and the surrounding circumstances we can safely infer that he experiences and intends to utter relational statements like THIS IS CALLED 'MILK;' I WANT MILK; or I LIKE MILK. Recently, Bloom (1973) has called attention to the problems of the child's truncated expressions, by pointing out that a single word utterance such as MILK can mean different things when it is uttered in different circumstances.

Types of Bilingualism. In extending the relational matrix shown in Figure 1, we can distinguish between at least two types of bilingualism with a third intermediate type between these extremes (see Figure 2). Such a distinc-

---

Insert Figure 2 about here

---

tion is not new. A similar comparison has been proposed by Ervin and Osgood (1954). In contrast to earlier discussion, we emphasize exclusively the external, sociological contingencies rather than intervening psychological conditions. It should also be noted at the outset that we attempt to describe idealized and extreme bilingual types. Conditions that generate these types are not commonly found in natural social settings. Hopefully, contrastive comparisons of these types will enable us to conceptualize more clearly and to understand more fully the problems of bilingualism, including those of subcultural differences in language use. Questions of whether these types and the conditions which generate them "really" exist in our or any other society are irrelevant at the present moment. Eventually empirical explorations need to be made in order to determine the commonality of these types and conditions.

First, we think of a situation in which at a particular time a second language, such as Standard English, is introduced to a child who, up to this point, was exclusively exposed to another language, e.g., Spanish. In the extreme case, e.g., of a child who has lost his parents and is being brought up by another family in which his native language is not spoken, no provision for the transfer of his first language knowledge may be made. Because of the complete lack of practice, this knowledge is likely to be slowly lost. We will call the case, in which both languages are introduced and used under dif-

ferent nonoverlapping conditions, i.e., in complete separation, the condition of independent bilingualism.

Second, a child might be exposed to conditions in which two languages are almost randomly mixed. In this case he does not only acquire two sets of intralingual relations, i.e., relations connecting different elements within either of the two languages but also two sets of interlingual relations connecting elements from one language with those of the other. The latter occurs from cross-lingual mixing within clauses such as "Give me the buch" and "Gibt mir die book." Intuitively it seems clear that such a condition, which we shall call confounded bilingualism, can not lead to an efficient acquisition of either the first or of the second language. If a child, during a given time period, can be exposed to and, subsequently, can acquire only a fixed amount of relational information, i.e., if we assume a fixed cognitive load represented by a small subsection or frame within the matrices of Figure 2, the confounded bilingual child has to distribute his efforts over an area four times as large, and the independent bilingual child over an area twice as large as that presented to a monolingual child. Thus these children, expecially the confounded bilinguals, are likely to receive less information in either of the two languages and it becomes unlikely that they will ever be able to compete successfully with their monolingual age mates.

Both conditions described so far represent extremes which are neither likely to occur in natural linguistic environments nor are they desirable for second language training.[2] The confounded condition overburdens the child with relational information too far scattered over the four quadrants of Figure 2 and fails to assist him in separating the two languages. The independent condition, in separating the two languages too sharply, prevents the child from transferring his first language knowlege to his second language and, thereby, to facilitate its acquisition; both languages are acquired in complete separa-

tion. No wonder that many parents and teachers are applying a modified combination of second language training schedules which lead to what we will call coordinate bilingualism.

Under the simplest but by no means most efficient form of coordinate condition, the second language is introduced with the aid of equivalence relations or translation. Most conveniently, equivalence relations are listed along the main diagonal of the two interlingua matrices of Figure 2, connecting each item in one language with its equivalent in the other. The use of equivalence relations allows for a limited transfer of first language knowledge to the second language but does not allow for sufficient explorations of the conceptual similarities between the two languages nor for the performance of complex translations which rely on more than one-to-one equivalence relations between the items of the two languages.

While the use of equivalence relations represents a minimal degree of coordination, a maximum degree is attained under confounded contingencies where in theory, though by no means in practice, every item can be connected with every other item across the two languages. Optimal bilingual conditions are created through the use of an extended set of equivalence relations larger than that of the one-to-one translations but smaller than the total set of all interlingual relations. The main task for second language teachers is to find such an optimal set on the basis of educational intuition. One of the main goals of the present paper is to delineate theoretically sets of equivalence relations which capture the conceptual and semantic properties of the two languages in a contrastive manner. More will be said about these issues in our section on Interlingual Relations.

As mentioned in the introductory section, children raised under favorable educational and economic conditions are commonly exposed to an efficient form

of bilingual contingencies, i.e., those leading to coordinate bilingualism. For example, Leopold (1939-49) exposed his daughter to one or the other language under distinct social conditions. Other investigators have advised parents in bilingual homes to use the two languages in distinctly different social settings, e.g., at the dinner table, in the playroom, outside the home, at the grandparents', etc. Thus, under coordinate conditions both languages are kept distinct, but the possibility for transfer of knowledge is also provided both by the use of extended equivalence systems and by reference to similar parts of nonlinguistic environment.

Children raised under poor economic conditions, on the other hand, are, it appears, commonly raised under the least favorable linguistic contingencies, i.e., either as monolinguals of the minority language or under contingencies leading to confounded bilingualism. Monolingual children of a minority language are forced to acquire the second language when they enter the school controlled by the majority or when they are looking for any better paying job. Without equivalence relations provided them, independent bilingualism can result (see footnote 2). Children from the majority group, in contrast, do not need to learn the minority language when entering the school or the job market. As shown by Lambert, Havelka and Crosby (1958) for French Canadians and by Hall and Freedle (1973) for Black American children, other members of the minority group, especially those who have attained a higher socioeconomic status which has made the use of the dominant language necessary, often expose their children to a mixture of the two languages. The more such a fusion has taken place, the greater the burden upon their children to acquire either of the two or both languages effectively and well. Not only is linguistic information spread out more widely and thinly, i.e., over all four quadrants of Figure 2, but these children are also prevented from tranferring knowledge in one language to the

other because the two languages are not sufficiently separated. Subsequently they can not possibly succeed as well as the independent or even coordinate bilingual in either one or both of the two languages. The first step to aid these children, we hypothesize, has to consist in accepting the two languages, e.g., Standard and Non-Standard English, as separate and equal. Such a segregation is the prerequisite for an intelligent transfer of knowledge, thus making an increased success in second language learning possible.

Stages in Bilingual Development. The three bilingual types can be regarded as levels in developmental progression with the independent and coordinate types as early transitions and the confounded type as the terminal stage. In particular, we have proposed the following sequence (Riegel, 1968):

Stage I characterizes the very early steps in the acquisition of the first language during which parts of the lexicon A are provided by the social environment, most notably the caretaker, through the use of extralingual relations. Thus, the interconnections are of a special type, namely between words and the objects, events, or qualities which they denote. The number of these extralingual relations, placed into the cells on the main diagonal of the upper left quadrant, i.e., into the A x A matrix, is equal to or less than the numbers of words in the first language, i.e., A. At Stage I no second language is acquired, thus the number of relations and words in the second language, B, equals zero.

At Stage II various interconnections in language A will be presented to the child. In theory but, of course, not in practice every item could be connected with every other item and (as at Stage I) with the object, event or quality which it denotes. Thus, the whole upper left quadrant could be filled out and, therefore, the maximum number of relations equals A^2. At this stage, too, the number of words in the second language equals zero.

At Stage III parts of a lexicon of language B are provided by parents and teachers through the use of equivalence relations. Equivalence relations appear on the main diagonals of the two interlingual quadrants of Figure 2 and connect items in language A to their translations in language B and vice versa. Thus, the total lexicon of both languages could be as large as A + B. The total number of possible relations equals $A^2 + 2B$, whereby the first term refers to the set of intralingual relations in language A which can be as large as A^2, and has been acquired already at Stage II. The second term refers to the equivalence relations A → B and B → A, which can be as large as 2B. The number of equivalence relations going in either direction may be unequal if the two languages differ in the size of their lexica.

Stage III resembles Stage I and is important for the initiation of second language learning under coordinate conditions where items of the second language are introduced through the use of equivalence phrases, such as "In German, table is called Tisch." Under independent bilingual conditions the similarity between Stage III and Stage I is even stronger. Here lexicon items of the second language are introduced through the use of extralingual relations which connect their labels with the objects, events, or qualities which they denote, rather than with their translation equivalents in the first language. In this case, the total set of relations equals the set of intralingual relations in language A, i.e., A^2, plus the set of extralingual relations in language B, i.e., B.

At Stage IV items in language B are also interconnected. The relations with A remain of the equivalence type for the coordinate bilinguals and of the extralingual type for the independent bilinguals. Thus, the total lexicon for the two languages equals A + B, and the total number of relations consists of those in language A, those in language B, and (at least for the coordinate

bilinguals) of the equivalence relations A → B and B → A, that is, $A^2 + B^2 + 2B$. The extralingual relations of the second language might be placed along the main diagonal of the quadrant for the second language, i.e., in that at the lower right of Figure 2. Even if the extralingual relations are not presented to the learner, he may derive them in language B without further instructions on the basis of the extralingual relations in language A and the equivalence relations A → B and B → A.

At Stage V all items of both languages, potentially, can be interconnected. The lexicon remains A + B. The total number of relations equals $A^2 + B^2 + 2AB = (A + B)^2$, i.e., all four quadrants of Figure 2 are now covered.

The major differences between the five stages have been summarized in Table 1. All stages must be regarded as transitional conditions in a process

---

Insert Table 1 about here

---

of continuous change. They overlap greatly. Thus, while an individual continues to be exposed to extralingual relations, he may already face intralingual relations between the different items of the first language. Also, while still being taught equivalence relations, he may be exposed already to intralingual relations within his second language or to other interlingual relations between the two languages.

The first four stages represent an idealized sequence of bilingual development, i.e., development as it "ought to be." The few children who may ever follow such a progression, most likely, belong to the culturally favored group of

well educated bilingual parents. In contrast, minority children are likely to be subjected to a reversal of this five-stage sequence. They enter a linguistic community that resembles the most complex stage of cognitive information, i.e., Stage V of confounded bilingualism, and then have to proceed backwards, most often left all on their own, in order to separate the two linguistic systems from one another as well as to apprehend the details of the transformation matrices of interlingual relations (see footnote 2).

Interlingual Relations. Undoubtedly, one-to-one equivalence relations are the exception rather than the rule in translations and occur among the most common terms only, such as Table ↔ Tisch and Horse ↔ Pferd in English and German. In most instances equivalence has either to be established at higher ranks, e.g., at the level of sentence parts, phrases or whole utterances; or equivalence has to be sought between semantic classes rather than between their elements, i.e., words.

The issue of equivalence at higher ranks touches upon differences between languages in syntactic organization. To give but one example, languages differ in their degrees of inflection. Since inflections are used for marking sentence parts, such as the subject, predicate, and predicate-object, word order can be varied more widely in inflected languages. Since inflected languages use different word orders for different types of sentences but noninflected languages do not, words will have to be shifted around in translation. Such operations tax heavily the memory of the translator and, in particular, rely on interlingual relations between various, nonequivalent items. For example, Standard English, a language with a low degree of inflection, uses only one major order of sentence parts, i.e., subject (S), predicate (P), predicate-

object (O) as in the sentence: "The boy threw the ball." Highly inflected languages, such as German, Russian, or Latin, use different obligatory word orders to mark different sentence types. For example, the above declarative statement would use the same order of sentence parts in German as in English, i.e., S - P - O. However, when rewritten as a question, German would use the order: P - S - O, and when used as a dependent clause, the order would have to be: S - O - P. It is possible to make use of these rearrangements in inflected languages because sentence parts are sufficiently marked by specific endings. Since English does not allow for the clear identification of sentence parts by their endings, a fairly rigid word order has to be maintained. Differences in sentence types are indicated by auxiliary construction, such as the question word DO.

Lack of one-to-one equivalence between the terms of two languages has to be resolved by considering their organization in semantic classes. Membership in semantic classes is generally determined by asymmetric relations which group items together that, for instance, do similar things (predication), e.g., tools, vehicles, etc., have similar parts (attribution), e.g., animals, furniture items, etc., are found at similar places (location), e.g., food items, toys, etc., or are logically included in the same class (superordination), e.g., all of the above. Most languages seem to consist of similar kinds of classes, but they may differ in the range and distribution of items and, thereby, in their degree of topical specialization. For example, English and most European languages are known to be highly elaborated in their technical and scientific vocabularies and thus may provide greater variety in membership within some semantic classes and, perhaps, a greater variety of classes themselves. Far-Eastern languages, on the other hand, provide a richer vocabulary of esthetical, psychological and philosophical terms.

The differences between these languages would, therefore, require that instead of simple one-to-one equivalency one-to-many or many-to-many relationships have to be explored in the translation process. In other words, translations can be achieved only at higher ranks, i.e., by rephrasing whole parts of sentences, and/or by relying on semantic class rather than single word equivalencies.

Although poorly understood at the present time, issues of semantic classes and organization make up the most significant topic for bilingual comparisons and for exploration of language development. During recent years, a few psychologists have directed their attention to these issues (Bloom, 1970, 1973; Brown, 1973; Kintsch, 1972; Riegel, 1968, 1970 a, b; Riegel & Riegel, 1963; Schlesinger, 1973) but the complexity of the problem seems to have prevented the majority of behavioral scientists to apprehend the significance of this issue. No comprehensive studies and interpretations have been completed on subcultural differences in semantic organization. This topic ought to become a major task for further explorations which, as they progress, are bound to exert a strong influence upon our understanding of these differences, of educational praxis, and social equality.

Environmental Utility. The three matrices shown in Figure 2 represent three types of bilingual environmental conditions. The child's acquisition of the languages proceeds by receiving consecutive samples of relational information from the environment. Stated differently, the child, in the course of his daily activities, is skimming over the matrices of intra- and interlingual relations. His intake will be limited during a given time period to a certain amount of relational information which will be determined both by the type and the richness of the environment and by his processing capacity. The amount of intake might be visualized as a small subsection of the matrices

shown in Figure 2, bounded by a frame of a given size. The longer the child has been scanning one of the matrices, i.e., the longer he has lived, the more likely it becomes that he will encounter information which he has already received once or several times before. With advancing age the individual slowly depletes the set of general information provided; it becomes less likely that he discovers new semantic relations.

On the basis of such reasoning it is possible to generate a growth function in which the depletion of the outer linguistic contingencies is plotted against age. As academic as such an enterprise might seem, it opens important possibilities for evaluating the utility or efficiency of various bilingual conditions. Since the details of such models have been presented elsewhere (Riegel, 1968) we restrict our present discussion to some inferences concerning the conditions of the minority child.

Figure 3 shows two growth curves, on the left for independent and on the right for confounded bilingual development. In both instances the shift into bilingual contingencies occurs at the relatively late age of about 17.5 years; also in both cases the distribution between languages A and B is even, i.e., half of the time is devoted to the first language. the other half to the second language. The main purpose of models like ours is, of course, to vary both the time of shift and/or the proportions of exposures in order to study the efficiency of various bilingual conditions.

Detailed information on the utility of bilingual conditions can be obtained by using the monolingual curve as upper boundary and comparing the area below it with those below the different bilingual curves. The closer the monolingual curve is approximated by any of the other curves, the greater the utility of the bilingual condition. For example, in the left-hand figure the

---

Insert Figure 3 about here

---

first bilingual curve approximates the monolingual curve much closer than in the right-hand figure. Thus, the utility of the independent bilingual condition (left figure) is greater than that of the confounded condition (right figure). This result is due to the large efforts directed toward the interlingual relations under the latter condition. Under both conditions, the second language is less effectively mastered, i.e., approximates the monolingual curve less well than the first language. This is not surprising, since the second language is introduced relatively late in life, i.e., at an age of almost 17.5 years, and thus a good deal of "catching-up" has to be accomplished.

Keeping the distribution of efforts between the two languages constant at 50% the utility is a direct function of the time of the switch into the bilingual condition. If this switch occurs early in life, the acquisition curve for the first language will be depressed over an extended period of time; second language acquisition will make relatively quick advances, however. If the switch occurs late, the first language is less affected but the progress in the second language is retarded. Special inferences about shifts in dominance between the two languages can be made if the proportional distribution is varied in conjunction with the time of the switch. Although these comparisons are purely theoretical, they allow for more explicit conceptualizations about development and subsequently for the planning of optimal environmental, linguistic conditions.

Conclusions. We have stated at the beginning, and it has become evident throughout the paper, that our analysis is predominantly theoretical. Moreover, there exists at the moment little evidence and few comparable interpretations directly concerned with subcultural differences in language and language development. In particular, we had to limit our discussion by regarding the two languages acquired by bilingual children as completely independent from one

another. Undoubtedly, such an assumption is not very realistic. We know rather that all languages are interrelated, be it through common cultural-historical bonds or through the universality and equality of human beings. But before the interdependence of different languages and cultures can be seriously considered, and before behavioral and social scientists should rush into empirical investigations, a more rigorous conceptual framework is required on which such comparisons can be based. Our present contribution -- it is hoped -- will serve this purpose.

In spite of the limitations mentioned and in spite of the lack of empirical evidence, our discussion allows for rather concrete inferences regarding such issues as educational policy, social planning and the ideological basis underlying both. The different conditions depicted in Figure 2 coincide with and reflect different socio-political attitudes toward other cultural and, especially, subcultural groups.

At one extreme, we have, first, the monolingual situation. If a monolingual state were ever attained in modern society, no problems of the type discussed would arise.[3] It is obvious, however, that in the modern world such an isolation cannot persist. Rather people are dependent upon other people, nations upon nations, and cultures upon cultures. The communications and exchanges required make bilingualism and multiculturalism necessary. Not surprisingly, therefore, the majority of people in the world are bilinguals, including the large populations of the old civilizations in India and China. Not surprisingly, either, narrow monolingualism is most rigidly preserved in colonial and imperialistic societies, the United States, Soviet Union, England, France, Germany and a few centuries ago, Spain, Portugal, and ancient Rome. Monolingualism, to a much more limited degree, is also preserved within iso-

lated tribes of so-called underdeveloped countries but in all of these cases recent political and economic developments have brought the future of these groups into grave doubts.

Second, the condition of independent bilingualism represents a socio-political arrangement which virtually prevents any exchange and communication, for example, between two subgroups of a society. In history such an arrangement has never succeeded for long. The only known and fairly successful case is that of Switzerland where, aided by geographical barriers, German, French, and Italian (not to mention the Rato-Romanch) communities have coexisted in harmony. In most other cases, however, and because language differences are commonly tied to cultural, economic, political, and worst of all religious frictions, few of these societies have persisted. The development either led to the domination of one group over the other (the British in Northern Ireland) or to the separation of both groups (the Greeks and Turks in Cyprus -- similar problems continue to exist in Canada, Belgium, and Holland).

Third, opposite to independent bilingualism, we find at the other extreme the condition of confounded bilingualism. Like the former case, a true fusion between cultural and linguistic groups has rarely taken place in history. Most of the time, one group absorbed the other either through violence or smoothly without any open frictions and conflicts. Nevertheless, the goal of fusing two cultures or languages into a new, "better," or "higher" system remains the ideal for many utopian movements. The promotion of Esperanto, Velapuk, and other international languages, for example, represents attempts to generate a universal and unifying mode of communication. As long as these attempts fail to deal with the underlying social and political issues at the same time, their success is bound to remain rather limited. Nevertheless, a fusion of Standard and Black English, for example, accompanied by social and political

awakening, might occur in the United States and provide a new basis for communication and exchanges.

Fourth, as long as the last possibility remains a remote ideal, the only concrete hope for solving cultural and linguistic conflicts consist in the development of coordinated or cooperative conditions. Such efforts have to consist first and foremost in mutual recognition and appreciation. Both languages have to be accepted as separate and equal. In regard to Black English, this goal is far from being attained and, therefore, we have emphasized, throughout this paper, the need for a separation, as far as possible, of the two linguistic systems. Only after such recognition is achieved does it become possible to succeed in coordination and cooperation. In language, this goal would be attained by comparing and contrasting the two semantic structures. At the present time little is known about this task. Our presentation -- hopefully -- has moved us a small step closer toward this goal.

Summary. (1) Although the burden upon bilingual children is heavy, they are advantaged in a higher sense because monolingualism is a true form of cultural deprivation. Since monolingualism provides restricted information in an effective manner, however, we ought to study monolingual development carefully in order to find the best route and methods for optimal progression in bilingual development. (2) Neither independent nor confounded bilingualism in their extremes constitute reasonable and efficient conditions of progression. A coordinated form is ideal which maximizes transfer and minimizes interferences. Such a form of bilingualism can only be established through detailed explorations of semantic, interlingual structures or, what might be called, semantic-syntactic transformation matrices. At the present time, such explorations are lacking. (3) If raised under such conditions, the independent bilingual be-

comes able to transfer a large share of his first language knowledge to his second language. The confounded bilingual is still not much assisted, however, because he has, first, to differentiate the two language systems from one another before, second, such transfer can take place. (4) In returning to our introductory limitations, we request that regardless of whether Black and White English dialects are linguistically sufficiently distinct, for the benefit and well being of many ghetto children living in a confounded linguistic environment, the two systems ought to be treated as such. Only after a clear separation is achieved, can we expect the child to progress effectively in either or both of the two languages.

Bloom, L., Language development. Cambridge, Mass.: MIT Press, 1970.

Bloom, L., One word at a time: The use of single word utterances before syntax. The Hague: Mouton, 1973.

Brown, R., A first language. Cambridge, Mass.: Harvard University Press, 1973.

Ervin, Susan M. and Osgood, C. E., Second Language learning and bilingualism. In Osgood, C. E. and Sebeok, T. A. (Eds.), Psycholinguistics, Bloomington, Ind.: Indiana University Press, 1965, pp. 139-146.

Ferguson, C., Language problems of variatior and repertoire. In Deadalus, Summer, 1973.

Freedle, R., The marriage of psycholinguistics and sociolinguistics. Paper presented at Georgetown University's Summer Institute in Linguistics, 1973.

Freedle, R. & Hall, W. S., An information processing approach to developmental sociolinguistics. In K. Riegel & J. Meacham (Eds.), The developing individual in a changing world. The Hague: Moulton, 1975 (in press).

Gumperz, J. & Hymes, D. (Eds.), Directions in sociolinguistics: The ethnography of communication. New York: Holt, Rinehart, & Winston, 1972.

Hall, W. S. & Freedle, R. O., A developmental investigation of standard and non-standard English among black and white children. Human Development, 1973, 16, 440-464.

Hall, W. S. & Freedle, R. O., Culture and language: An essay on the black American experience. Wash. D. C.: Hemisphere Press, 1975 (forthcoming).

Kintsch, W., Notes on the structure of semantic memory, in E. Tulving & W. Donaldson (Eds.), Organization of memory. New York: Academic Press, 1972, pp. 247-308.

Labov, W., Sociolinguistic Patterns. Philadelphia: University of Pennsylvania Press, 1972.

Lambert, W. E., Havelka, J., & Crosby, C., The influence of language-acquisition contexts on bilingualism. Journal of Abnormal and Social Psychology, 1958, 56, 239-244.

Lambert, W. E., Tucker, G. R., & d'Anglejan, A., Cognitive and attitudinal consequences of bilingual schooling. Journal of Educational Psychology, 1973, 65, 141-159.

Leopold, W. F., Speech development of a bilingual child. (4 vols.) Evanston, Ill.: North Western University Press, 1939-1949.

Quarterman, C. J. and Riegel, K. F., Age differences in the identification of concepts of the natural language. Journal of Experimental Child Psychology, 1968, 6, 501-509.

Riegel, K. F., Some theoretical considerations of bilingual development. Psychological Bulletin, 1968, 70, 647-670.

Riegel, K. F., Relational interpretation of the language acquisition process. In G. B. Flores d'Arcais & W. J. M. Levelt (Eds.), Advances in psycholinguistics. Amsterdam: North Holland, 1970, pp. 224-236.

Riegel, K. F., Time and change in the development of the individual and society. In H. Reese (Ed.), Advances in child development and behavior, Vol. 7, New York: Academic Press, 1972, pp. 81-113.

Riegel, K. F. & Riegel, R. M., An investigation into denotative aspects of word meaning. Language and Speech, 1963, 6, 5-21.

Riegel, K. F. & Riegel, R. M., Development, drop and death. Developmental Psychology, 1972, 6, 306-319.

Rumelhart, D. E., Lindsay, P. H. & Norman, D. A., A process model for long-term memory. In E. Tulving & W. Donaldson (Eds.), Organization of memory, New York: Academic Press, 1972, pp. 197-246.

Schlesinger, I. M., Grammatical development. In E. Lenneberg & E. Lenneberg (Eds.), Foundations of language development, 1973.

Zivian, M. T. & Riegel, K. F., Word identification as a function of semantic clues and associative frequency. Journal of Experimental Psychology, 1969, 79, 336-341.

FOOTNOTES

[1] Moreover, French Canadians represent a relatively large contingent located in a geographically coherent area who can rely upon a well recognized cultural-historical tradition which for many centuries has overshadowed the utilitarianism of the British-American world (Riegel, 1972).

[2] Actually the problem is probably even more complex. Hall and Freedle (forthcoming) report data which suggests that for dialect speakers of lower socioeconomic groups, preschoolers seem to have an overall positive correlation matrix across the two dialect systems (which may be likened to the confounded bilingual condition), but, after entry into school, these children without obvious 'translation' equivalences provided them appear to partially separate the two systems so that across dialects sometimes negative correlations (suggesting cognitive interference effects), sometimes positive, and sometimes zero correlations can be observed. The real-world situation then seems to be much more complicated than our present theory can account for; our purpose though is to present simple paradigm conditions to help eventually in analyzing these more complex real-world cases.

[3] It is useful to recall our earlier discussion of the impact of sociolinguistics upon psychological approaches to language. Since even monolingual speakers actually have a range of speech registers for various occasions, the theory presented here can be extended to encompass a cognitive theory of how information across the two or more language registers which a particular speaker may use come to be acquired. The differences across register types in the "monolingual" speech community need not be lexical; instead if the differences are, for example, phonological then our theory could be reconceptualized so

that phonological translations are the main focus rather than lexical translations. The general conceptual power of our theory is therefore seen to transcend bilingual or bidialectal theories and can be applied to analyze the development and cognitive interpenetration of any two conceptual domains.

Table I

Qualitative Stages of Bilingual Development

(A = size of repertoire in first, B in second language).

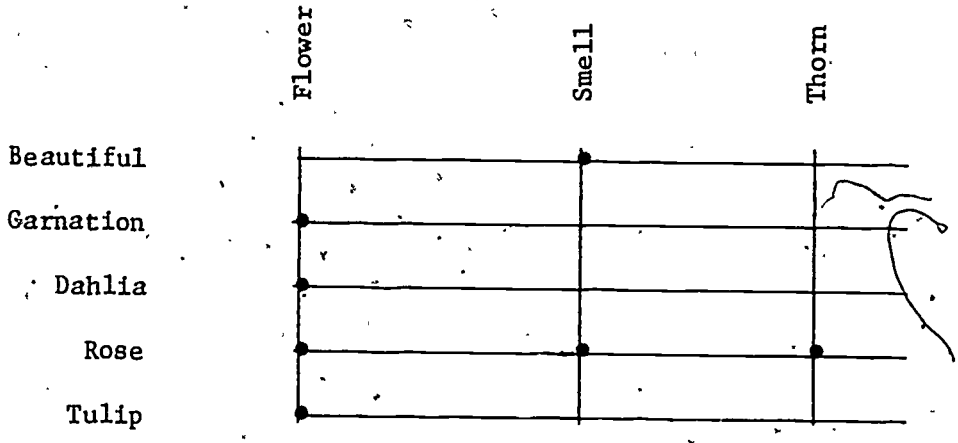
Stage	No. of Relations	No. of Elements
I	A	A
II	A^2	A
III	$A^2 + 2B$	A + B
IV	$A^2 + B^2 + 2B$	A + B
V	$A^2 + B^2 + 2AB$	A + B

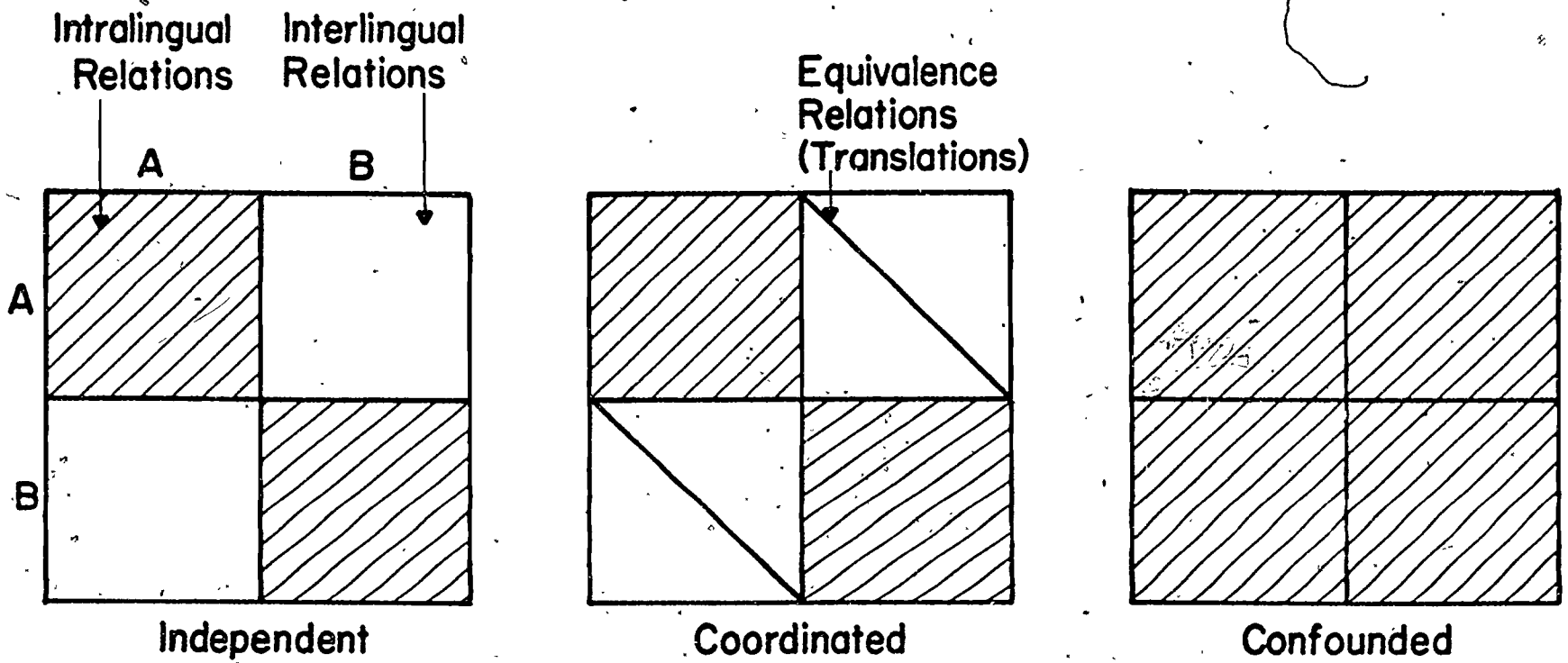
Figure Legends

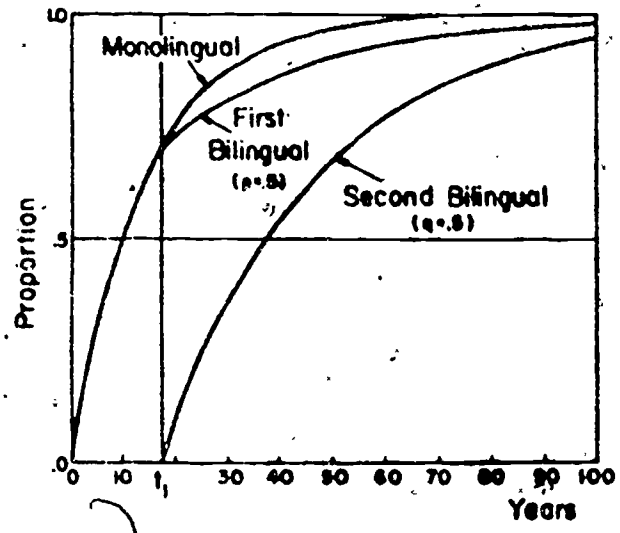
Figure 1. Schematic representation of four terms related to the class name FLOWER, three terms related to the word ROSE, and one term related to SMELL.

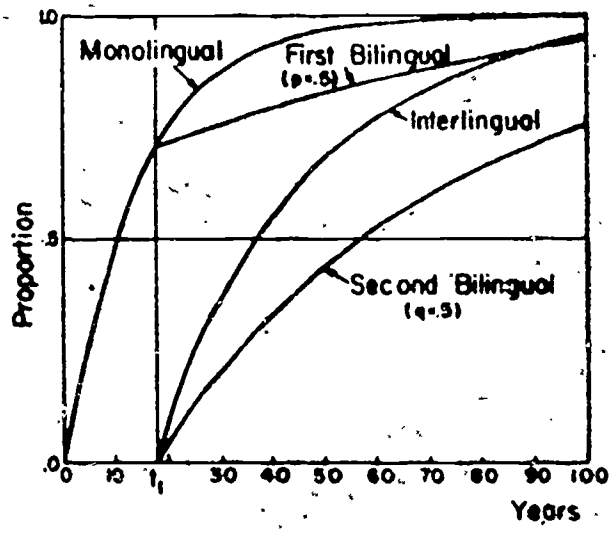
Figure 2. Three types of bilingualism

Figure 3. Growth of the sets of relations provided in monolingual and bilingual environments as a function of independent (left figure) and confounded conditions (right figure). Proportion of time devoted to first language is p while q is the proportion devoted to the second language; p and q both equal .50; age at which the two languages compete for time is 17.5 years; the monolingual spends 1.00 proportion of time on a single language.


Flower
Smell
Thorn
Beautiful
Garnation
Dahlia
Rose
Tulip


Intralingual Relations
Interlingual Relations
A
B
A
B
Independent
Equivalence Relations (Translations)
Coordinated
Confounded


1.0
.5
0
Proportion
Monolingual
First
Bilingual
(p=.5)
Second Bilingual
(q=.5)
0
10
t_1
30
40
50
60
70
80
90
100
Years


1.0
.5
0
Proportion
Monolingual
First Bilingual
(p=.5)
Interlingual
Second Bilingual
(q=.5)
0
10
t_1
30
40
50
60
70
80
90
100
Years