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BECOMING A BILINGUAL.

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A BILINGUAL-IN-PROCESS COULD BE A CHILD GROWING UP IN A BILINGUAL ADULT MILIEU, OR AN ADULT WHO HAS MOVED TO A DIFFERENT LINGUISTIC MILIEU. THE LEARNING PROCESS MIGHT BE CASUAL EXPOSURE OR SYSTEMATIC PEDAGOGY. THERE IS STRONG EVIDENCE THAT FOR CHILDREN UNDER ELEVEN LANGUAGE IS SOUND AND FOR ADULTS, SENSE. CHILDREN ATTEND MORE TO THE SURFACE, JUST AS THEY ALSO CONNECT SPEECH MORE TO THE IMMEDIATE SITUATION IN WHICH IT OCCURS. FOR ADULTS, LANGUAGE IS TRANSPARENT, SINCE ADULTS RAPIDLY PENETRATE THE SURFACE OF AN UTTERANCE TO ITS MEANINGS, TO A NETWORK OF CONNECTED THOUGHTS. THE BASIS FOR THIS DIFFERENCE BETWEEN CHILDREN AND ADULTS IS UNKNOWN. IF THE DIFFERENCE IS NEUROLOGICAL, OR LIES IN THE LOSS OF AN ABILITY, CHILDREN MUST BE EXPOSED TO DIFFERENT TEACHING METHODS THAN ADULTS, SINCE THEIR ABILITIES DIFFER. IF THE DIFFERENCE IN BEHAVIOR IS A CONSEQUENCE OF SHIFT OF SET OR ATTENTION OR THE RESULT OF THE ADULT'S GREATER RICHNESS AND SKILL IN SEMANTIC ASSOCIATION, THE PEDAGOGICAL IMPLICATIONS ARE QUITE DIFFERENT. THESE CONSIDERATIONS AND OTHERS CONCERNING AGE OF LEARNING AND THE SOCIAL MILIEU ARE BROUGHT TO BEAR IN THIS PAPER, TO SUGGEST NEW DIRECTIONS THAT RESEARCH MIGHT TAKE IN THE STUDY OF BILINGUALISM.
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BECOMING A BILINGUAL

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A bilingual-in-process could be a child growing up in a bilingual adult milieu, or an adult who has moved to a different linguistic milieu. The learning process might be casual exposure or systematic pedagogy. In this paper, some of the considerations affecting age of learning and the milieu are brought to bear to suggest new directions that research might take. These observations arose from discussions at the UNESCO Bilingualism conference, Moncton, Canada.

Pedagogy and Age

Phonology. There is strong evidence that for children under eleven language is sound, for adults, sense. Children generalize more between words alike in sound, give more clang associations, confuse the meanings of similar-sounding words.[1] In adults, similar behavior appears in feeble-mindedness and under drugs. One might say that for adults language is transparent, since adults rapidly penetrate the surface of an utterance to its meanings, to a network of connected thoughts.[2] Children attend more to the surface, just as they also connect speech more to the immediate situation in which it occurs.

The basis for this difference between children and adults is unknown. If this difference is neurological,[3] or if it lies in the loss of an ability (like the traditional notion of eidetic imagery) then there is a clear pedagogical implication: children must be exposed to different teaching methods than adults, since their abilities differ. If the difference in behavior is a consequence of shift of set or attention (like the shift from color-sorting of blocks to form-sorting), or if the difference is a result of the adult's greater richness and skill in semantic association, then the implications are quite different. First, one would have to find out what the age curve

is, for specific items, to see if age difference in learning rate affects new sounds where there is no negative transfer,[4] and if the curve matches the generalization curve mentioned above. If so, then one might seek to simulate in adults the conditions of attention to sounds and play with sounds that are common in child use of language. In one experiment, attention to sound was increased by simply delaying semantic information (glosses) for a few days. Phonological skill in this group was no better than in a control group with no delay.[5]

Lexicon. Children's lexicon is composed almost entirely, in Osgood's terms, of signs rather than assigns.[6] New words are normally learned in the context of visual-motor activity, whereas much of the adult's vocabulary is learned in a purely verbal context so that its meanings are verbal. Asher has claimed dramatic increases in learning rate and retention when adults were treated like children with respect to learning context, i.e., when they were taught to recognize words referring to actions they performed and objects they handled.[7]

Grammar. Differences between adults and children in grammatical capacity may arise from limitations in memory and "programming capacity" rather than limitations in the character of the grammatical rules they can process. That is, the differences may be more quantitative than qualitative. At six, there do appear to be some limits in the grammatical rules used by English-speaking children. There are some specific details of the English system to be worked out, such as nominalizations of verbs, pronominalization, participial verb complements, and semantically complex structures like "if" and "so" clauses, and perfect aspects.[8] The children do not know the rules involving rare structures, or those used in various styles. But it is impressive to see in a variety of studies in different languages how early most grammatical patterns and sociolinguistic variations are acquired.[9]

In order to know whether control of a grammatical pattern in one language will facilitate learning an analogous pattern in another language, one needs an underlying theory of the logical structure of grammatical rules. The results from studies of grammatical development have so far not been stated in a sufficiently abstract form, transcending the specific structures of each langue, and even of langage. The emphasis of general cognitive research on children has been on development before two and after five, so we know little about the cognitive operations children develop during this age period, which is most critical for language. But judging from the child language diaries it appears that there must be, by school age, an extraordinary capacity for grammatical learning. There is no evidence of basic intellectual barriers to learning new language structures quite early, provided (a) the semantic distinctions are not difficult ones, such as the conditional, and (b) the training input is not too complex quantitatively, in terms of the amount of imbedding, or the co-occurrence of new meanings with new grammatical structures. It may be that even these limitations are sufficiently inconvenient so that from the standpoint of learning grammatical patterns, unlike the learning of sounds, early teaching is no distinct advantage.

Imitation. Studies of input-output relationships in imitations appear to be a fruitful way to characterize the linguistic system as it changes. Here I shall draw on some pioneering work of Charles Welsh, who has been developing a process model of utterance imitation for a two year-old child. This model can predict the output for any input. While processing models have been offered before,[10] the convenience of imitation is that both input and output are fully specifiable.

The Welsh model[11] contains first a phonological analyzer. Both segments and phonotactic patterns are analyzed according to the child's rules. For example, the child may consistently convert "banana" to

['mana], and "gramma" to ['ŋama] and "gun" to [ŋən], through a general analyzer which perceives all nasals as in initial position but preserves other features of the initial consonant.[12]

The second component in the model is a dictionary with category markers, which assimilates what is heard to familiar words, within certain limits. Thus "Chomsky and Veritas are crying" became "Cynthia and Tasha cry" but "cui bono is the quarter" became "cui bona a quarter." If the sentence is less than five words long, new items could enter the child's dictionary, receiving the category marker inferred from its position.

The third component is an auditory storage device for holding material while further analysis occurs. In one model[13] this analysis consists of predictions, rather like a Markov chain. In Welsh's current thinking, there is a set of pre-analyzed templates in the form of category sequences. The surface structure of the sentence, in terms of category markers, is scanned and the appropriate template is selected, which includes "encounter-operate rules" for what to do when standard order (e.g., English S-V-O) is violated. It is these templates which result in the return of "The boy the chair hit was dirty" as "Boy hit the chair was dirty," and "The man who I saw yesterday runs fast" as "I saw the man and he run fast," and "The pencil and some paper are here" as "Some pencil here and some paper here."

An analysis of such rules at various stages of second language learning would prove highly enlightening.[14] One can expect that there might be sharp changes in comprehension and imitation as new templates or new enounter-operate rules are acquired.[15] It is important to note that these models are not logical models of the rules of a language, such as those of a linguist, but an attempt to characterize the processing algorithms of real speakers. They will therefore contain quite different components and types of rules.

Imitation is often used as a pedagogical device, and it is frequently considered both a necessary and sufficient account of language learning. Recent evidence suggests that it is neither, at least in terms of structural learning.[16] Spontaneous imitations of two-year-olds, whose linguistic systems are undergoing rapid change, are as simple or simpler syntactically than their free speech. Many adults and some children learn languages without any overt imitations, as well as without correction, to a degree beyond that required for intelligibility. Thus we do not in fact know how to account for the fact that the linguistic system changes very rapidly, except to refer to changes in the system of comprehension. For example, children may say "otherbody" before they say "somebody," "tomorning" before they say "tonight," and "do-ed" before any regular past tense. This evidence suggests that children's structural analysis of what they hear, rather than any rote imitation, is the key to systematic change.

Elicited imitation in the classroom probably has two values: motor drill and the manipulation of attention. The first, of course, refers to a peripheral skill in articulating sequences. The second is more interesting. It may be that elicited imitation is like disconfirmation in logical or cognitive development. Disconfirmation can draw attention to features hitherto ignored as noisy or irrelevant. Short simple sequences might be repeated to a point which violates former processing rules, thus forcing the rule system to change. The imitation of versus, songs, and dialogues, advocated by Jones, thus has value only if there is evidence that the learner comprehends the components and produces imitations that are phonologically or grammatically superior to free speech. Even this kind of practice may not succeed in altering the structures for sentence production, of course. If the imitations used in the classroom are consistently filtered through the existing processing device of the pupil without any effect on that device, then they are not pegagogically useful for learning the linguistic system, though they may have other uses.

Social Milieu of Learning

The above discussion pertains to school teaching of a second language or of the mother tongue. In almost all respects other circumstances of bilingual acquisition are dissimilar; in social support of the two languages, values, norms of correct usage, and sociolinguistic rules for speech. I shall touch on each of these points briefly.

By social support of bilingualism, I mean that the learner hears speech in several languages outside the classroom, either because he moves between two monolingual communities or because there are consistent rules governing alternations in a bilingual community.

Social support appears to be of greater importance to children than to adults. It is a common complaint of sojourners abroad that their children both learn and forget languages too readily, whenever the linguistic milieu is changed. It could be that when the milieu is reinstated there would be marked savings on re-learning, so that there is not so much "forgetting" as lowered availability. On this point we sorely need systematic research. Perhaps children's selection of linguistic variety is more dependent on the social milieu and less dependent on private motives than the adult's. Adults can sometimes alter the language used to a given interlocutor at will. In addition, their rich inner speech and their access to reading may provide a form of support for linguistic forms which children lack. An adult may retain a language for forty years as its sole speaker, merely with the aid of inner speech. On the other hand, if children are dependent on social support, elementary school foreign language programs may have serious problems in the event that there is a continuous exposure to a language neither in the school nor outside.

Values play an important role in determining whether a given condition of social support will produce or sustain learning. At a gross level, beliefs about the ease or appropriateness of becoming bilingual may affect the probability of child or adult learning. In India it is assumed that children will readily become multilingual; in the United States bilingualism is taken as a matter of course only where the second language is English. Speech markers of social identity carry a strong value which may promote or retard learning. Labov, for example, has noted that the speech features of the women teachers in New York may not be learned readily by working class boys. Both the teachers and pupils may share a belief that non-standard English emplies toughness.

In addition to altering the effects of a fixed social milieu, the learner's values may lead him to alter the milieu--to increase or decrease exposure to the second language. Thus Japanese women married to Americans learned fluency as a simple function of years in the United States, but beyond the needs of rudimentary communication there were vast differences in the degree of learning of phonology and grammar and even of American ideas, related largely to their values and education.[18]

Values should enter predictions at two points. If circumstances do not guarantee exposure, values may lead to seeking out conditions for listening and inner speech. If the social milieu provides support, then the social meaning of linguistic markers will determine how far second language learning progresses beyond lexical alternations and the basic syntax necessary for intelligibility.

Primary Language Data

Any full analysis of the process of learning must contain realistic specification of the actual input system, or in this case the "primary

language data," including the stable and variable features, the social meaning of each variable, and the co-occurrence rules. As John Gumperz has most fully demonstrated, it is the norms of the face-to-face community which influence bilingual speech.[19]

In school learning, for example, the pupil may never use L_2 in a monolingual setting, nor learn the sociolinguistic rules of that setting. Even in social milieux where two monolingual communities are nearby, there usually is at least a bilingual belt between, and only interpreters and travelers would have occasion to frequent both communities, with resultant constraints on their linguistic behavior.

Probably most bilinguals live among others like themselves; they may have contact with only one or no monolingual community. The bilingual is likely to be exposed to a single set of semantic and phonetic ranges for many linguistic categories. An American Indian child in the Southwestern United States hears about him a form of English with inter- and pre- vocalic glottal stops and simplified final consonant clusters. The Canadian francophone hears considerable common lexicon in both speech varieties, so that "sink," "hotel," and "table" are shared, but "homme" and "man" are not. One is likely to find maximal separation of varieties and maximal co-occurrence restrictions only in the highly self-conscious, carefully monitored formal and written registers.[20]

Even in bilingual communities maintaining considerable linguistic separation, there may be sociolinguistic convergence. American Nisei have not learned Japanese speech etiquette, and appear rude in Japan; American Lebanese may lack classical Arabic allusions appropriate to formal situations; the familiarity and status distinctions carried by the second person pronoun or inflection of the verb in many languages may be lost by American bilinguals so that the speaker sounds presumptuous. Thus even if the classical "true bilingual" existed, he might be a social boor.

Interference

In all studies of language learning, there must be some way to characterize the linguistic system of the learner. Traditionally, this analysis has consisted of noting from tapes or writing the deviations of the learner's output from some ideal norm. When these deviations can be attributed to structures in another language, they are called interferences.

There are at least three general classes of phenomena which have been included in this term. These are features in the systematic norms of the bilingual community, or its language and sociolinguistic rules; systematic features of the learner's language at a particular point in time; and performance errors.

Compouns norms. In the language of a bilingual community there may be fixed or compound features shared by both linguistic varieties. This is especially likely to be the case with semantic and phonetic features. In the example given above, sink is a lexical item common to both the French and English linguistic milieux for representing the same semantic category.

Second, there may be systematic alternations between the two varieties, which are part of the sociolinguistic norms of the community and carry social meaning which the members can identify. Blom and Gumperz have found that even when speakers can recognize the social meaning of switching, they may not be able to control switching consciously when they talk among themselves.[21] They refer to situational switching for the case when the variety is predictable from the interlocutors, setting, or topic. Metaphorical switching occurs within a given situation for connotative purposes.

Negative transfer and simplification. A newcomer, whether child or adult, to a new linguistic milieu must master a new system. If the milieu is bilingual, he must master as well the rules for alternation between the two varieties. These rules can be characterized by either a linguistic model or a performance model. He must learn general grammatical categories, rules of arrangement of those categories, phonetic and semantic distinctions, and particular morphemes which represent semantic and grammatical categories. It frequently is the case that in lieu of learning all of the new features, he continues to employ the same distinctions, the same grammatical categories, the same rules of arrangement, and even may import morphemes into the new variety. In the process of learning he may overgeneralize newly learned features and alter the initial system accordingly. For example, a Frenchman speaking English may regularly use "who" as the subject of relative clauses, as in "That's the book who is on the table." He has a common syntactic rule in both varieties and merely alternates "qui" and "who" as diamorphs.[22] In such cases, whether it be L_1 or L_2 which is affected, we speak of interference because features are used in common in both languages which are not shared in the speech community from which the norms derive.

However, it also happens that learners employ patterns common to neither language. When this happens, we may find something analogous to the interesting idiolectual rules in child language development. A frequent occurrence is the omission or overgeneralization of morphemes in the new variety, even where the appropriate semantic or syntactic category exists in the primary language. We might call such instances simplifications. By using a reduced set of distinctions, by omitting inflectional morphemes, the learner cuts down the task in sentence production. Possibly the morphological and syntactic simplifications of second-language learners correspond

to some simplifications common among children learning the same language. Where these become stereotyped modes of addressing new learners, learner and teacher may develop a pidgin.[23]

Performance errors. While the speaker may control and recognize a norm for speech, he does not always realize in his output the rules which he knows. This is true of practiced speakers as well as learners, of bilinguals as well as monolinguals. Performance errors are inconsistent, and tend to occur in fatigue or under stress, or when sentences are long, grammatically complex, or contain novel lexicon. They arise from overtaxing the "programming capacity" of the speaker. The bilingual's speech system contains more complex rules, both linguistic and sociolinguistic, than the monolingual's, and therefore his performance errors may violate co-occurrence restrictions socially or linguistically, producing intrusions.

It would be of great interest to psycholinguists to know whether there is a non-random distribution of performance errors. For example, it appears in English texts of Frenchmen that loanshifts are frequent following cognates. In a system undergoing constant change, there may be oscillation between rules from two adjacent stages of development in the learner's dialect. It might be a characteristic feature of performance errors that they include forms of negative transfer or simplification typical of an earlier stage of learning. For this reason, it is of value to supplement textual data with tests in the form of comprehension of imitation measures which provide richer criteria of those regularities which occur under all conditions of performance.[24]

If the distinctions between different types of interference are correct, then the second kind of analysis, the analysis of the learner's system, is central to an understanding of the process of bilingual learning.

A series of studies in which the social conditions of learning and the primary language data are specified should predict outcomes in terms of the learner's idiolect, or the language of a group of learners. For example, a child of an isolated Italian immigrant couple hears English and Italian morphemes both realized with many Italian phonological features. He is likely, like his parents, to use a common phonological system with lexical alternation. But he may adopt the English phonological system of his peers, interpreting his parent's phonology as idiosyncratic, since it is not uniquely joined to Italian lexicon by co-occurrence restrictions.

The rate of acquisition of different features under specific learning conditions would be of great interest. In my data, semantic compounding is very common, affecting both L_1 and L_2. But among native speakers of French in the United States, the lexicon seems to be the conscious marker of the language being spoken, so little morpheme borrowing occurs when language is controlled by instructions. The rate at which new syntactic rules are acquired varies considerably. Sequences which affect the "basic grammatical relations"[25]: modifier-head, subject-predicate, verb-object, are learned very fast and learners rapidly acquire coordinate rules for representing these relations. Thus French bilinguals almost always maintained a difference in noun-adjective sequence for English and French, and Japanese newcomers to English learn very rapidly to use S-V-O as the normal order in English and S-O-V in Japanese. On the other hand, they have great difficulty in maintaining separate rules for adverb placement, and in learning the sub-categorization of English verbs according to objects and complements, so that they say "he put," but never "he them put." Transformations reflecting basic grammatical relations may be learned faster and be more resistant to change than those reflecting secondary relations or subcategorizations.

Differences in the rate of acquisition of new rules, and the permeability of old rules to convergence with the new, cannot be predicted entirely on the basis of contrastive analysis. The facility with which the order rules for the basic grammatical relations are learned arises either from their fundamental importance for intelligibility, or from their role in strategies for listening to the speech of others. In this respect, as in many others, the problems in the analysis of the process of becoming bilingual are very similar to those in the study of monolingual child language acquisition.

Footnotes

1. Susan M. Ervin-Tripp, "Language Development," In Review of Child Development Research, Lois and Martin Hoffman, Eds., Vol. 2, Russell Sage Foundation, 1967, pp. 62-63.

2. Jacqueline Strunk Sachs, "Recognition memory for syntactic and semantic aspects of connected discourse." Ph. D. Dissertation, University of California, 1965. Surface phonological features may be registered by hearers also to classify speakers according to a system of stereotypes.

3. Eric H. Lenneberg, Biological foundations of Language, John Wiley, 1967.

4. In second-language learning, either positive or negative transfer may occur, or prior training may be simply irrelevant. Unfortunately, most emphasis has been placed on negative transfer. For sophisticated application of these psychological concepts to second language learning, see Eugene Briere, "An experimentally defined hierarchy of difficulties of learning phonological categories," Language, 1966, 42, 768-796.

5. Japanese was taught in taped lessons to American students with structure drills based on a contrastive analysis. For a third of the sessions no gloss was given. There was no difference in pronounciation between the students who first learned the Japanese sequences without the gloss, and those who learned meanings along with the sequences. Jesse Sawyer, et al., "The utility of translation and written symbols during the first thirty hours of language study," Internat. Rev. Applied Linguistics in Language Teaching, 1963, 1, 157-192.

6. Charles Osgood, George Suci, and Percy Tannenbaum, The measurement of meaning, Urbana, Univ. Illinois Press, 1958, p. 8.

7. J. J. Asher, "The strategy of the total physical response: An application to learning Russian," Internat. Rev. Applied Linguistics in Language Teaching, 1965, 3, 291-300.

8. Paula Menyuk, "Syntactic structures in the language of children," Child Development, 1963, 34, 407-422. In addition, sentence imbedding increases with age, suggesting that children's "programming capacity" increases quantitatively. See, for example, the increasing use of clauses reported by Mildred Templin in Language Skills in Children, Univ. of Minn. Inst. Child Welfare. Monogr., No. 26, 1957, p. 94.

9. Ervin-Tripp, op. cit., Lenneberg, op. cit., Slobin, D. I. "The acquisition of Russian as a native language," In F. Smith and G. A. Miller (Eds.) The genesis of language: a psycholinguistic approach. Cambridge, M.I.T. Press, 1966.

10. Presidential address of Charles Osgood in 1963 before the American Psycholgical Association, "On understanding and creating sentences," Amer. Psychol., 18, 735-751. This is a general model which does not yield as specific predictions as an input-output model.

11. Charles Welsh is a graduate student in psychology at the University of California, Berkeley, and has presented an outline of his model informally at the Institute of Human Learning. His dissertation will contain a more fully-developed version.

12. A nasal anticipation rule is probably common in child language in the second year. For another example of such a rule see Susan M. Ervin and Wick R. Miller, "Language development," 1963 Yearbook of the National Society for the Study of Education, p. 115.

13. James P. Thorne, H. McL. Dewar, H. Whitfield and P. Bratley, "A model for the perception of syntactic structure," Eng. Lang. Res. Inst.,

Univ. of Edinburgh. In this computer program, English sentences are given rapid syntactic interpretations, using only a dictionary of functions and syntactic category sequence predictions. This might be a hypothetical processing model for actual perception of sentences, as the title implies.

14. For example, the dictionary might be changed first, by the addition of diamorphs employing similar category-markers in the translation "equivalents."

15. The template change conveniently accounts for the rapid learning of certain high-frequency phrase structure rules, mentioned below, such as S-V-O order in English. In a phenomenological analysis of learning to comprehend Hebrew during a year in Israel, Robert Epstein, in a term paper, reports bursts and plateaus in comprehension though vocabulary increased at a more constant rate. Epstein suggests these bursts involve shifts in "listening technique," at first involving selective attention (e.g., attention to first and last words) and later "methods of ordering the syntax of sequences." If such sudden shifts can be objectively confirmed, they may correspond empirically to the development of templates or enounter-operate rules.

16. Susan M. Ervin, "Imitation and structural change in children's language," New Directions in the Study of Language, ed. by Eric Lenneberg, M.I.T. Press, 1964, 163-190.

17. Labov, William, "Stages in the acquisition of standard English." In R. Shuy, Social dialects and language learning, Natl. Council of Teachers of English, 1964, 77-103.

18. Susan M. Ervin-Tripp, "An Issei Learns English," Journal of Social Issues, 1967, 23, No. 2, 78-90. On the learning of semantic shifts, in relation to attitudes, see also Margaret J. Earle, "Bilingual semantic

merging and an aspect of acculturation." J. Personality and social Psychol., 1967, 6, 304-312.

19. Blom, Jan-Petter and John Gumperz, "Some social determinants of verbal behavior," to be published in John J. Gumperz and Dell Hymes Eds., Directions in Sociolinguistics, Holt, Rinehart and Winston, 1968. John Gumperz, "Linguistic and social interaction in two communities." In J. J. Gumperz and Dell Hymes, Eds. The ethnography of communication. Amer. Anthropol. 1964, 66, Number 6, Part 2, pp. 137-153.

20. John Gumperz, "On the linguistic markers of bilingual communication." J. Soc. Issues, 1967, 23, No. 2, 48-57.

21. Blom and Gumperz, op. cit.

22. "If two morphemes have phonemic shape or semantic function in common, they will often be identified by bilingual speakers.... Such semantic and morphological overlapping has been described as producing a 'compound sign'; in pursuance of my suggestion for the phonemic identification, I shall refer to this as a diamorph." Einar Haugen, "Problems of bilingual description," General Linguistics, 1955, 1, 1-9.

23. For some examples in an inflectional language, see Slobin, op. cit. Ferguson has recently suggested that copula deletion may be a feature shared by child speakers, baby talk to children, stereotyped speech to foreigners, and pidgins. Charles Ferguson, "Absence of copula in normal speech, baby talk, and pidgins." (mimeo.)

24. Examples of such tests can be found in D. I. Slobin (Ed.) Field Manual for the Cross Cultural Study of the Acquisition of Communicative Competence, ASUC Bookstore, University of California, Berkeley, 1967. This is a draft manual to coordinate studies of first-language acquisition and language socialization in various societies.

25. It has been argued that these relations apply to the deep structure of sentences, and are universal constraints on grammars. "They supposedly describe an aspect of children's capacity for language.... Evidence exists that the basic grammatical relations are honored in children's earliest patterned speech, if not before." This evidence is presented by David McNeill in "Developmental Psycholinguistics" in Frank Smith and G. A. Miller, The genesis of language, Cambridge, M.I.T. Press, 1966, pp. 15-84.