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SOME SUGGESTIONS FOR RESEARCH ON FIRST AND SECOND LANGUAGE ACQUISITION.

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The author considers controversial psycholinguistic problems in the study of first and second language acquisition, raising such questions as whether all children learn language in the same way, and whether all languages are learned in the same way. Her observations, based partially on observing her own bilingual child, suggest that the cenematic (phonological) and pleremetic (morphological) levels are acquired independently of each other, and ought to be investigated separately. Individual differences in language learning procedures exist, and show up in much the same way when a foreign language is acquired. Parallelism during the "telegraphic" stage in Italian, Russian, and English-speaking children is a universal concept formation, rather than syntax. It appears most likely that a child's language development is conditioned by his cognitive development and is therefore primarily semantic rather than syntactic. The maturation curve during which the child acquires his language at the same time he expands his cognitive powers is different from the mental process of second language learning, and raises the question of dominance in bilingual children. (The author discards the concept of co-ordinate versus compound bilingualism.) The memorization of a fixed linguistic model, associated with a constant non-linguistic behavior, is at the root of the child's language acquisition. (AMM)

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Some Suggestions for Research on First and Second Language Acquisition

The search for universals in child language is extremely complex. Here I would like to call attention only to the most controverse of the inherent problems. These problems are all psycholinguistic, even though some problems are primarily psychological in nature while others are principally linguistic. Each can be investigated in its own right, but a full understanding of first language acquisition can come only from a consideration of all of them.

To examine the question of whether all children acquire language along the same lines of development is inevitably linked with the question of whether or not all languages can be acquired in the same way.

If the reply to the first is positive and the second negative, how would a bilingual child proceed in acquiring two languages of a basically different type? Does the structure of the language prevail over the way it is acquired or can one and the same child handle only one mode of acquisition? If the latter is true, then which of the two languages will be dominant? Would the dominance be psychologically or linguistically conditioned and can it vary from child to child? How important are sociological

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considerations?

To begin by asking if all children acquire language in the same manner is an oversimplification. I am convinced that the cenematic and the plerematiclevels are acquired independently of each other[1] and, without going into finer divisions,[2] these two levels at least ought to be investigated separately. The simple fact that it is possible, and even common, to speak a foreign language with the wrong pronunciation even though lexicon and syntax are fully correct shows that the phonological level is definitely distinct. This does not by itself prove that it also originates separately in the language development of the child. In child language the separation of levels becomes apparent most clearly at the time of the transition from the babbling stage to lallation. Two bilingual children, at least, even seemed to be aware of the separation of levels.[3] It is not impossible that we can trace a fairly uniform trend in the phonological development while there might be much greater variation in morphology, lexicon and syntax. The fact that the final result of language acquisition is congruence of exponency does not have to be equated with confusion of levels either in the beginning stage or at final mastery.

For a variety of reasons, the learning of a

foreign language is different from the acquisition of one's mother tongue.[4] By the very nature of the language learning process the two operations do, however, contain enough common factors[5] to warrant a systematic comparison. Contrary to the usual procedure which takes an opposite tack, I would suggest that what is known about the learning of a second language by adults be checked against the child's language learning process. Both groups are difficult to test, but adults can co-operate whereas small children cannot. One thing, surely, first and second language learning have in common: Their rate of acquisition depends mainly on "functionality",[6] i.e., the learner's participation in a communication system. As a matter of fact, language development is not "free from control of detectable stimuli",[7] contrary to a recent claim by Noam Chomsky.

It is extremely difficult to understand the language development of the child, witness the many conflicting theories which have been formed on the subject. Maybe a new working hypothesis could be developed by checking one by one what little is known about foreign language learning. It has the advantage that adults can be studied more easily, by experimentation as well as by introspection.

So far, research tests in applied linguistics

have produced contradictory results.8) Permit me to cite a personal experience to support a strong suspicion of mine that indeed there are individual differences in the way a foreign language may be learned.

When I was an Italian university student, the examination most dreaded by doctoral candidates in classics, was the four hour written translation from Italian into Latin. Three of us who used to study together, particularly in preparation for the translation hurdle, compared notions how best to learn the rules of consecutio temporum and other challanges in Latin syntax. While my two companions memorized the rules as stated in the textbooks, I would memorize long passages from Cicero, feeling that, whenever I had to supply a grammatical form, I could establish it by analogy. My friends considered my method cumbersome. One of them had, however, used a similar pattern approach for Latin metrics.

Pat Dilley, a recent high school graduate, about to enter college and eventually specialize in psycho-linguistics, canvassed 48 high school students for me. Most of them were seniors, with a sprinkling of juniors and sophomores. Their general educational background was quite similar. They all came from two prep schools in Nashville, Tennessee. The students were told we wanted to know how they prepared for their classes and

tests in French. Of them, 38 students (21 girls and 17 boys) answered that they "memorized endings" while 10 (6 girls and 4 boys) said they "remembered from examples". Apparently, the great majority of students relied on morphological rules more than on patterns. They went so far as to say that they "visualized the page upon which the chart was", and when they took a test they would "see the chart". Besides, they considered this the way they were "supposed" to learn French. Their grades ranged from A's to B's and C's to an occasional D. The smaller group - the one which drew on examples - had all A's and B's.

In addition to there being no difference among males and females, a more important conclusion can be drawn from this preliminary survey: Although it is possible to attain a high grade average with both the pattern and the rule approach, the students working from patterns never received low grades. This may be due to various reasons: The latter students, obviously, showed more initiative and were less apt to follow instructions blindly, as they had somehow divised a method of their own. An alternative explanation may be that the pattern approach is intrinsicly better. Still another determining factor may be that the smaller group had all chosen the method suited to their individual aptitudes while the majority followed a

method which was congenial to some but unsuited to others. More research is needed. Particularly, if the last hypothesis is true, it should be checked against findings from child language. I believe that from such a comparative study of first and second language acquisition psycholinguistics will gain many new insights.

What causes individual differences in the mnemonic storage of language data, I do not know; but they certainly seem to show up independently of teaching methods. Incidentally, there always is the danger of using teaching results as a direct explanation of the learning process. The mistake is reflected also in some tests devised for the analysis of child language.

For the sake of clarity, it should be added here that the possible existence of inborn differences in learning techniques is completely unrelated to the Chomskian innateness theory, both in its earliest version and in its present almost totally reversed form. With the exception of few American structuralists in the fourties and early fifties, nobody ever questioned that the human faculté de langage is species-specific. Inborn human aptitudes are not to be identified with Platonic ideas. Wittgenstein's discussion of an innate language mechanism also strikes me as not sufficiently clear.9) I am not concerned here with a built-in

language structure, but with general learning and memory operations which apply - albeit not exclusively - to the acquisition of language. The difference in these aptitudes may well be hereditary, like ear- and eye-mindedness and other factors.10)

Obviously, I have no recall of how I acquired my first language, but I have observed that in some respects my son's first language acquisition resembled my own process of foreign language learning more than it did other persons'. What is more striking is the fact that my son's beginnings in foreign language learning apparently proceed on the same mnemonic lines as did his first language acquisition. I am following the process very carefully and in a year or so something more conclusive in this regard should bear evidence on the validity of the working hypothesis of the present paper.

It seems to me that there are individual differences in language learning procedures and that they will show up in much the same way when a foreign language is acquired. Of course, the presence of individual continuity in the language learning strategy or its absence would not prove or disprove Leont'ev's typology.11)

The earliest efforts toward learning a language stem from a need for communication. This I learned

from the way my son gradually built up his two first languages. In Italian, he was able to say new words containing phonemes he had not pronounced before when there was no other way to get across information which seemed vital to him.12) The same situation was described to me independently by several parents.

Here I shall recall in my son's regard just two incidents, one involving the appearance of a new phoneme and the other that of word creativity. On day, when my son was exactly one year and a week old, I took him away from a spot on the lawn where he had been playing. He balked a little, but followed me. Suddenly, he pulled hard on my hand, trying to go back to where he had been before. I saw him make a tremendous effort with all the muscles around his mouth, to come out finally with the word ič̆a. This made me look back and sure enough there was Micia, our cat. So I let him stay and play with her. Had the child succeeded to make me notice the cat in some other way, he probably would not have worked so hard to produce the word ič̆a, of which the first phoneme [i] was not yet part of his phonological repertoire.

At nineteen months, during a brief absence of his father, one night the chickens were stolen on the farm behind our house. My son not only loved to watch the chickens and throw food to them, but was intrigued

by a robbery happening in real life and not just on the television screen. As soon as his father returned he wished to tell him about the extraordinary event. His active vocabulary, at nineteen months, was still limited and did not include any word for chicken. As soon as he saw his father, the child looked in the direction of the chicken house and after a moment of what seemed a concentrated intellectual effort, created the word gogók, presumably onomatopaeic, uttering gogók pu (pu was his usual form for più, the Italian equivalent of "all gone", Italian being my son's first language). The sentence followed the same pattern of all his two word sentences, the first occurence of a two-word sentence having taken place at sixteen months.

A fixed word order was also observed by Brown and Bellugi13) and by Slobin.14) I would not, however, consider this syntactic, but, pure and simply, pre-syntactic, like the one-word sentence. The subject is only a logical subject and does not always correspond to what would be the nominative in adult language and is not even necessarily a noun. As "words in the [adult] model are often missing from the [child's] imitation but the words preserved are in the order of the original",15) the subject is no longer necessarily the first element and the child's sentence, taken

in its overt shape, cannot be considered identical with the favorite clause of the language being acquired. To construct grammars for - i.e. out of - children's utterrances is a pointless undertaking, the results of which can only be imaginary.

The parallelism in Italian, Russian and English speaking children does not strike me as having anything to do with what can legitimately be called syntax. Syntax - which by definition follows rules which are language specific - is acquired later and probably very much along the lines which Slobin reports for the development of morphology, i.e. "in terms of the relative semantic or conceptual difficulty".16) What then is universal is not syntax, but concept formation. During the "telegraphic stage", children leave out the functor words; and it is precisely the functors which carry the greatest load of syntactic information.

That the early stages of concept formation are not in any way tied to syntax is clear to all who have worked with deaf children and has been demonstrated by the performances of deaf and hearing children on the Leiter scale.17) Even more significant may be the fact that congenitally deaf children of normal intelligence and capable of non auditory communication among their peers find it extremely difficult to acquire syntax.18) Incidentally, it is also plausible

that humans are capable of non-language coded thought.19)

All told, it appears most likely that the discovery - i.e. understanding and use - of the language of his environment by the child is conditioned by his cognitive development. It is therefore primarily semantic, rather than syntactic. Semantics, of course, is the relatedness of linguistic to extra-linguistic data. I quite agree with Renira Huxley that a child's perceptual device "means an ability to make use of situational clues in interpreting utterances whose structure is too complex for children".20)

If anything is innate, it is the maturation curve of cognition and not the structure of syntax.21) Individual variations within the physical maturation of the child do not contradict the validity of a general curve.22) Some children creep before they walk while others go through a stage of scooting on their behind; but no child walks at five months. The same is true in language acquisition. To furnish an example, while the subjunctive "is quite late in American children",23) in my son's syntactical development it appeared early. He was raised in Tuscany, where the subjunctive is used extensively. I may be wrong, but the child's early use of the Italian subjunctive seems due more to that words signaling a semantic distinction than to its frequency. The

weight of semantic relevance compared with frequency of occurrence is certainly worth investigating. Bilingual children, of course, would present the best subjects. Even bilinguals with no phonic interference, however, may have semantic interferences. In Italian, my son used to speak of "hot" peppers which makes no sense at all. Peppers are "strong" in that language.

Following my son's bilingual development in Italian and English, a most powerful arguement in favor of semantics showed up when the analysis of his translation procedures revealed a significant difference in mnemonic storage of language items acquired by rote as against those acquired through a process of understanding.[24] This is in striking contrast to the ease with which in the first grade he learned to distinguish the spelling of meat and meet, sent and cent and similar homonyms.[25]

That semantic factors rather than syntax is basic to the beginning of human speech appears from the very way children form their primitive one-word sentences. This fact was already understood by the Sterns.[26] The whole precedes the parts. It is from the vague understanding of discourse that children extrapolate the one word which carries the essential message. The word milk, for example, in an extra-

ordinarily important extra-linguistic situation, is the constant within a variable linguistic context of "Would you like", "Don't you want", "Please drink", and the like. Later on, this process is paralleled by the child's acquisition of vocabulary. There, too, "children pass from diffuse to more specific word meanings".27)

For my son's first and a half years of life the Italian word Mamma, "Mother", first comprised all women, then all women he knew, and finally the restricted meaning of his mother only. Having only one word, "woman", does not mean that the child did not distinguish his mother from other women. As a matter of fact, even before acquiring the word mamma he certainly gave me a broader smile than he did to anybody else. Cognition precedes language, but we know next to nothing about the whole process.28)

The process of semantic interpretation is demonstrated also when children - and, for that matter, the second language learning adults, too - reshape into known terms what is unclear to them. In his second year, il ponte levatoio, "the draw bridge" became for my son il ponte lavatoio, "the washing bridge". In his eighth year an only child became a lonely child, a Dude ranch became a nude ranch. At a historical level, of course, this we

have long known as folk etymology.

Before embarking on any realistic analysis of first language acquisition, one must have clearly in mind Uhlenbeck's statement that "the insight of the existence of linguistic and non-linguistic categories proves to be essential".29)

The algorithm30) of cognition applied to language must be semantic. At first, there is a generalized and vague supra-sentential understanding of the discourse. As I see it, this stage is followed not by an analysis of the sentence in its syntactic construction; but, first of all, by the child's more specific understanding - and use - of "words".31) After this period comes the understanding of syntax, which, consequently, is best viewed as a network of relationships. The meaning of the "word" is deduced from the extralinguistic situation and from its linguistic context.32) In discourse - which is suprasentential - the context is paradigmatic as well as syntagmatic. From Slobin's research showing that "the word stem is clearly a psychologically real unit"33) it is evident that the small child is aware of the paradigmatic axis. However, the relatively late appearence of morphology in Slobin's subjects confirmed my impression that initially the paradigmatic

system comprises full statements, or, at most, phrases. Within these the child works syntagmatically.

Carol Barach, a student of mine, transcribed the speech patterns of her son during the first quarter of his fourth year. Her data for his English are in agreement with Slobin's for Russian. She writes: "There is no way to modify a word, say, with the ending, 'ish'. If there is no word in his vocabulary to describe something precisely, the nearest word will have to do even though David is aware of the compromise. I presented him with a raincoat which was tan, (a word I was pretty sure he did not know.) I asked him what color it was. Since color seems to be for David one of the most interesting and important qualities a thing can have, he was eager to answer. He said 'gray' then paused, 'No, yellow'. He went back and forth between gray and yellow and finally settled on yellow, but seemed tentative about the decision. I then pointed to a bright yellow toy and asked him what color it was. He said 'Yellow' right away. I asked him if it were gray. He replied 'No' in a tone that showed he thought it as a stupid question. I concluded that he perceived the difference in color between the tan raincoat and the yellow toy, but his vocabulary lacked the name for the new color. If he had anything like an affixing language, he could

have said it was grayish or yellowish or yellowy or gray-like. Instead he had to broaden his definition of the word 'yellow' to include the color tan."34)

I observed in my son, when he was a year and six and a half months old and still in the one-word sentence stage, the first occurence of nónčepu (Italian non c'è più) "all gone". Clearly this was a phonetic word for him and certainly not a grammatical construction.35) At one year and seven and a half months, he used pju (Italian più) to assure me that he would never again misbehave. At a year and eight months, nónčepu is used again for "all gone" and I am not so sure that he realized the selfsameness of più in the sequence non c'è più and più at the end of sentences like Non lo farò più, and similar ones. Unfortunately, at the proper time when I jotted down these notes, I did not follow through investigating the status of più carefully enough. It must be reported here that, generally, Italian children use simple più for "all gone".

These notes taken in 1961 and 1962 regarding my Italian speaking son correspond quite closely to Martin Braine's English data of 1963: "Those segments are considered 'words' which are the longest segments that cannot be divided into two or more parts of which both are English morphemes that occur in the corpus

independently of the others. Thus 'ice cream' and 'all gone' are each classified as one word in Gregory's speech, since neither 'ice' nor 'cream', nor 'all' nor 'gone' occur in other contexts or alone. However, for Andrew 'all gone' is classified as a combination of two words, since 'gone' occurs by itself, and 'all' occurs independently in 'all wet', 'all dressed', etc."36) Essentially thus the question of "single" and "incorporated" use of all in all gone remains open, as it is not ascertained if Andrew himself had any awarness, conscious or unconscious, of the word division of all gone into all and gone and, even if so, did the child realize or not that both all were identical beyond the overt sound level? The problem is the same with more and no more.37)

What I have observed quite thoroughly is the manner in which my son internalized the vocabulary of both Italian and English, the two languages of his bilingual upbringing. He was born in Italy and lived there until five years of age when he came to the United States. As long as he lived in Italy, Italian was his active language and English his passive language. During his first year in the States, both languages were active and in the two years since English has become the active language, Italian receding to the

passive role.

The process by which he built up his earliest vocabulary in Italian was later duplicated when English began to become active. I wish I could have devised a technique to analyse the development of the passive language as well, but that will have to wait. Tranformational approaches, admittedly, give no clue either to the programming of speech or to its acquisition.

Until about school age, my son was the type of child who never wanted to show his ignorance. Although extremely anxious to find out what he did not know or to understand more exactly what he knew in general, he avoided direct questions. When uncertain about a language item, my son would consistently - and with obvious awareness of his heruistics - request me to perform some action, like moving a chair. From my behavior he would discern if he had expressed himself correctly. If he had any doubts about being fully correct, he would do one of two things; either use a different sentence with the same word he was testing, or keep the sentence constant and substitute the word under scrutiny. He was working with co-occurence and distribution and his discovery procedure was a substitution test over a suprasentential range of language material.38)

In linguistic theory, this amounts to stating that an ambiguous sentence like "He bought stock for me"[39] would not be disambiguated by successively applying two different grammatical rules. The child would, instead, proceed by tentatively substituting other words or word groups for the troublesome "for". Even though language can be described transformationally with great benefit, I have sincere doubts that it is either acquired or programmed according to P and TG rules. As a final goal, it may very well be true that "Reduction of syntax or semantics to distribution in any serious sense is dead",[40] but as a beginning stage in child language, distribution seems to be in a key role. It is true that "The striking fact about the use of language is the absence of repetition: almost every sentence uttered is uttered for the first time."[41] But only if "repetition" stands for the identical rendering of a model sentence. From my observations, children do not create new sentences; they modify those they have heard before.

This paper is not the place for a discussion of "meaning".[42] Keeping this explosive word in its most general and, I dare say, popular sense, it seems that the child's unit is the discourse before it is the sentence. As a matter of fact, anaphora does not

present great problems to understanding.

If one wants to create an algorithm and construct a mathematical model for my son's heuristics, what comes closest to it is the concept of correlativety, where "Within a certain linguistic register, a word that normally has several meanings is narrowed down and defined by its collocation with or proximity to another word, with which it may be said to correlate."43)

Kolers has performed important experiments concerning his "two hypotheses about the way a bilingual person handles information", i.e. "that all his information is either stored centrally or in one tank, and that he has access to it equally with both languages" or "that his information is stored in linguistically associated ways, or in separate tanks." His conclusion "that the actual situation of a bilingual person combines parts of both hypotheses"44) gains additional support from the acquisition of lexical meaning by the correlativity algorithm, as I have observed it in my son and described above.

The linguistic information the child was seeking was obviously semantic as he tried to match a linguistic form as closely as possible with a non-linguistic referent, thing or action. Furthermore, I would not

say for sure that my son explored nouns before he did verbs.

By the way, one of the earliest words uttered by the child, at ten months and three weeks, was dá:te (Italian grazie) "thank you". This word was improved to ač at one year and one day, and to ače at thirteen months and one week. It was pronounced whenever an object was changing hands; it made no difference whether it was given to the child or taken from him. His very first word, at seven months, had been ča (Italian ciao), "bye bye", followed by his second word, fully two months later, pappa, the Italian word for baby food. I doubt that children start building their vocabulary by "naming persons or things" unless they are led in this direction. As far as my son is concerned, he seemed to build his lexicon according to what was needed for communicating.

Evidently, the maturation curve during which the child acquired his language at the same time as he expands his cognitive powers is different from the mental process of second language learning. The manner in which the child related a lexical item to the non-linguistic reality and verifies its meaning by a substitution test does, however, bring to mind the type of mistake most common with the unsophisticated

student of foreign languages. At his age, he has fairly well established the semantics of his native vocabulary, and simply assumes that all there remains to be done in a foreign language is to change the phonological component. Substitutions such as these have been observed by virtually all foreign language teachers.45

When he learns a second language, instinctively, but erroneously, the student applies a technique he used automatically, and successfully, when a child. The difficulty lies not necessarily in the fact that the foreign language and the native language are radically different.46) It is the different learning circumstances which call for a different approach to semantics. This is clear to Monsieur de La Palisse, but learning habits formed in childhood are notoriously persistent.

This raises again the question of dominance in bilingual children. Are there "true" bilinguals? Or is there necessarily always a prominence, either total or with respect to levels. The concept of co-ordinate versus compound bilingualism was never quite substantiated and has finally been completely discarded,47) or so I hope.

In my son's earliest speech development, there probably was an all-level dominance of Italian. When

he was six years old, his Italian had receded to the passive role and a year later virtually all traces of calques had disappeared, like the very early My father makes the beard (Italian: Mio padre si fa la barba), "My father is shaving" and the last calques at seven years He takes company (Italian: Tiene compagnia), "He keeps company" and Make me company (Italian: Fammi compagnia), "Keep me company" (imperative), had long since disappeared. Interestingly, three weeks before his eighth birthday, there suddenly still showed up an interference in lexical semantics. The Italian verb sentire embraces both the meaning of English "to smell" and of "to hear". To my great astonishment, my son asked me to let him hear a certain odor. I recall very well how many "correlativity questions" the child had asked me in Italian during his fourth and fifth year of life, with regard to the verb sentire. Having worked so hard at it, this word, more than many another, acquired by his peculiar learning strategy, must have left him an overwhelming impression.

If there are inborn discovery procedures for the acquisition of language, I would rather consider them on a distributional than on a transformational basis. Of course, it is easier to observe the child's

gradual understanding of lexical meaning than it is of syntactic meaning; but, from a thorough analysis of the former we may eventually obtain insight into the latter. The observations made on my son strongly support Ranko Bugarski's "main premise, namely that grammar and lexis interact, in a demonstrable way."48)

To conclude, in my son's case at least, lexis precedes syntax. More generally, to quote Householder, "the grammars in his brain" seem to contain "many examples ... linked by a complex network of analogical chains; and if they contain rules (as they must in some way), most of them are in the form of open analogical chains with general instructions to extend."49)

The importance of analogy in language is apparent in historical linguistics. Analogy operates on semantics, syntax, morphology, and phonology. Neologisms as well as a child's spontaneous creations can be classed as analogical change. Most revealing in this respect is children's disguised speech,50) teenage slang, and the new hippie language.

I noted rather carefully when and how my son started using color names accurately. One of the last color definitions he acquired, at three and a half years of age, was <u>arancione</u> (Italian for "orange"). On the very same day, the child spoke of <u>arancione</u>

chiaro, "light orange". Similarly, Carol Barach's son, when shown the picture of a mountain sheep, named the animal a horn dog.51)

The development of language in children, in my opinion, progresses in two essential steps, imitation followed by analogical extension. As Jakobson puts it, "Children's gift to acquire any tongue whatever as their first language and, more generally, the human ability to command new linguistic patterns, may arise primarily from the instructions coded in the germ cell but this moleculer assumption does not authorize us to conclude that for the little apprentice the language of adults is nothing more than a 'raw material'."52)

In its early stages, a child's understanding of language is as gross and unquantized as his own production.53) "These things are picked up first as wholes and then 'deepened' later."54)

A most striking example in support of the theory of imitation was furnished by the one year old son of a colleague of mine at the University of Florence, Italy. The child had one identical overt form, pákka, for Italian schiaffo, "slap" and scarpa, "shoe". The homonymy was eschewed by the child's consistent mimicry of an extremely stern face accompanying the pronunciation of káppa in the meaning of schiaffo,

a facial gesture representing that of his father when administering a slap.55)

Several parents have remarked to me about their children talking "televisionese". But actors and advertisers, except for the famous cigarette that tastes good like a cigarette should, do not generally follow rules different from standard English. The "televisionese" effect in child language appears to be one of imitation and analogical extension. The TV bound children were either repeating entire sentences or forming new ones on the model of those heard over the air. My son, at seven and a half years, would say to me: Hand me over that apple with the tone of a cowboy telling his partner to hand him over that gun. Or he would say There ain't no hurry with my homework, where "homework" obviously had not been in the model sentence. He knew very well that the first part of the sentence was not modeled after his parents' speech, and he usually produced these grammatical shockers with a grin on his face. The notion of a model sentence was mentioned earlier in this paper and is strongly supported by Slobin's fixed word order56) as well as by Carol Barach's data: "The word order is important. He does not respond to a simple request if the word order is scrambled. Perhaps the importance of the word order is reflected in his conservation of 'regular'

word order for questions."57)

As far as I can make out from all the children I have observed, the memorization of a fixed linguistic model associated with a constant non-linguistic behavior is at the root of the child's language acquisition. By model I do not mean an algebraic one, but plainly a syntagmatic sequence. Children are capable of "understanding the meaning of the sentence as a whole, but not [of] understanding the grammatical function of the elements."58)

In contrast to the authors of this statement, I would add that children at the "telegraphic" stage do not construct grammatical rules. Miller and Ervin go on to say that "It is clear that the grammar of these sentences is not identical with the adult model"59) where as to me the child's utterances are merely imperfect imitations with occasional substitutions. In my mind it is still open to question whether children, even though they do not "do so from the very earliest age at which words are combined"60) inevitably, at a later stage, "must and do eventually induce construction rules".61) If children acquired language by forming rules of a transformational or some other type, it could not be explained how it is possible for retardates to be capable of speaking. The retardate who is unteachable and only trainable could not acquire

language. "These are children with IQs of 50 or better. They will apply rules of grammar on most grammatical levels correctly even though the subject matter of their conversation may not be very bright. ... An IQ of 50 is deficient enough to keep a child from learning the most elementary concepts (counting, social distance, rules of kindergarten, parlor games), yet it is high enough to use correctly plurals, tenses, question transformations, etc."(62) Brain damaged children cannot count but can memorize a long string of numerical sequences if trained to do so. This means to me that their memory is less damaged than their "intelligence" - in this case, ability to understand. Positing language acquisition as primarily based on imitation, analogy, and substitution will lessen the gap we face when trying to explain the language acquisition of the subnormal as compared to the normal child. This way we could also understand why retarded children do not make use of "complex" sentence patterns. These require a greater amount of short (or medium) term memory than the cerebropathic child is equipped with. In this respect the retarded children are similar to older people of normal intelligence who will eventually discontinue the use of cumbersome embeddings. Recent research has demonstrated that with aging memory diminishes, even when

the power of understanding does not decrease in any significant manner.

If we look for a chronological sequel of rule formation in first language acquisition, I am afraid we are seeking something that is not there. Grammarians and linguists have discovered important logical relationships in the way human language is construed. Transformationalism, in particular, has uncovered some most recondite and complex correspondences within the English language. The rules are there, but the child neither knows them nor applies them and does not acquire his language according to them. The rules cover relationships; they have no chronological or psychological sequence. Putting them in an order of axquisition strikes me like looking for the beginning of a circle which has already been drawn, and, then, to draw a circle it does not matter where one starts.

Bill hit John and John was hit by Bill are obviously related, but what remains to be tested is whether in speech programming and/or during first language acquisition the passive is produced as a transformation of the active or as an analogy of another passive. If we adopt the latter hypothesis, the active-passive relationships become one step removed or "deepened". The question is: would it

then be a linguistic or a conceptual problem? The child at the two-word stage who says both Bill hit and John hit for the same event does not furnish any epistemological clue from his overt verbal behavior. Before we can make any assertion on what actually happens, or what constitutes his competence, we must await that psychologists provide us with suitable testing devices. For the moment, the most likely hypothesis seems to me to be imitation-analogy.

Carol Barach's son63) consistently distinguished his use of nice versus pretty and of love versus like on a basis of animate (dogs, puppies, tigers, kangaroos, snakes, mama, daddy) versus inanimate (trees, shoes, books, toys exclusive of stuffed animals which were animate). Was this a grammatical category; or is its application to only two items too restricted to warrant calling it such? If it is a grammatical category, did the child "create" it from the majority of cases where nice and love were associated with persons and animals as distinguished from pretty and like which were more frequently associated not with living beings but with objects? Or is he simply realizing a regular ayntagmatic co-occurence, substituting paradigmatically one animal or one person for another by virtue of a semantic category he has formed of these groups? My son, who had been raised

in the country, applied the adjective buono (Italian "good") to useful, edible animals where city children eventually speak of good (i.e. lovely) sparrows, little mice, and pets. More data from more children are needed. This may be what we need most: more empirical data before we venture any hypotheses, including the one presented here.

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2) For a comparative treatment of the subdivision into levels of linguistic analysis according to a variety of linguists see WILLIAM FRANCIS MACKEY, Language Teaching Analysis, Indiana University Press, 1967 (1st 1965), pp. 37-41.

3) WALBURGA VON RAFFLER ENGEL, Del Bilinguismo Infantile, "Archivio Glottologico Italiano", Vol. L - Fasc II (1965), pp. 175-180. Prof. FRITZ HENSEY of the University of Texas informed me that his daughter who is being raised with English and Spanish behaved in exactly the same way.

4) For an outline of some of the basic differences of the language learning process in children

and adults see WILLIAM G. MOULTON, A Linguistic Guide to Language Learning, The MLA of America, 1966, pp. 2-6.

5) This was implicitely recognized by ROGER W. BROWN, Language and Categories, Appendix to Jerome S. Bruner, Jacqueline J. Goodnow, and George A. Austin, A Study of Thinking, New York, 1956, p. 301, when he shows the applicability of the Werner - Kaplan test to second-language learning. "Suppose the context in which the German word occurs is one that I can translate. I then have an English sentence with a gap corresponding to the new word and am in a position to guess the English equivalent of the unfamiliar word from its single context attribute. As the new word recurs in different contexts the attributes multiply and the likelihood of identifying it increases. Successful use of this method depends, of course, on similarity of combinational probabilities in the first and second languages."

6) STANLEY M. SAPON, Micro-Analysis of Second Language Learning Behavior, "IRAL", Vol. III, No. 2, (1965) p. 131: "L'acquisition d'une langue par un séjour dans un pays étranger est souvent plus efficace

que son étude en classe, non seulement parce que les renforcements sont plus nombreux mais aussi parce qu'ils sont distribués en raison de l'efficacité fonctionnelle des réponses et pas seulement de l'exactitude linguistique de ces réponses."

7) NOAM CHOMSKY, Language and The Mind, I, "The Columbia University Forum", Vol. XI, No. 1, (Spring 1968), p. 9.

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16) Op. cit., p. 141.

17) ERIC H. LENNEBERG, The Biological Foundations of Language, New York, 1967, pp. 358-362.

18) Cf. BERNARD TH. TERVOORT, Developmental Features of Esoteric Communication Among Deaf Children, paper delivered at the Tenth International Congress of Linguists, Bucharest, Rumania, 1967.

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20) Cf. RENIRA HUXLEY, Discussion of E. S. KLIMA and URSULA BELLUGI, Syntactic Regularities, in Psycholinguistic Papers, Edinburgh University Press, 1966, p. 210.

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