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TWO NEW STUDIES ON PEDOLINGUISTICS

(Robbins Burling: Language Development of a Garo and English Speaking Child; Word, Vol. 15, No. 1, 1959. — F. Grewel: How do Children Acquire the Use of Language? [From the Department of Child Psychiatry, Wilhelmina Casthuis, Amsterdam]; Phonetica, Vol. 3, No. 4, 1959)

The first paper (by R. Burling) is a contribution towards the study of bilingualism with children taking up problems which were attached as early as in 1913 by J. Ronjat in his book Le développement du langage observé chez un enfant bilingue. As for the more recent studies in this field, let us mention at least Language Learning V, 1954 by Werner F. Leopold. Burling's subject is a child of American parents who undertook a socioanthropological investigation into the life of the Garos, an Indian tribe of Tibeto-Burman origin. At the time of their arrival in the Garo Hills, the boy was one year and four months old and was just beginning consistently to attach meanings to some of his vocal activities that he had been displaying in profusion for many months. His first few words were English, but as he immediately came into regular contact with Garo speakers, Garo words were soon added to his vocabulary. During the family's two year-stay in India an exhaustive record of the boy's linguistic development was kept.

In his paper the author offers an analysis of the successive additions of distinctive features rather than a detailed description of the ever changing phonetic minutiae which are typical of any child's speech. The task the author has set himself is by no means easy. In regard to the wide variation within the limits of a phoneme it is hardly possible to specify precisely the time when the child first makes a contrast within the range of speech sounds that had constituted a single phoneme during the first stages of his linguistic development. Such an analysis is very difficult especially because in the child's phonematic inventory there are but very few pairs for comparison.

The boy began to use Garo words within a few weeks of his arrival in India. His English vocabulary, nevertheless, grew steadily as well. It took several months before Garo became clearly predominant. The eventual triumph of Garo was aided by a protracted hospitalization of the boy's mother which removed him from close contact with his most important English model. He remained mainly in the hands of a native Garo nurse and his father spoke to him in Garo as well. The result was steady progress in the Garo language and his linguistic development went on in much the same way as with any Garo child.

On the arrival in the Garo Hills the boy had a total vocabulary of a mere dozen words, but even those required a considerable phonematic inventory. At that time

(a) — a low, central vowel, corresponding to Garo **a**, which is very similar to English **a**; used both in Garo and English words;
(o) — a back rounded vowel, intermediate between the cardinal positions of (o) and (ɔ), and thus corresponding to Garo **o**; used both for English and Garo words;
(u) — a high, usually central, not much rounded vowel, corresponding to Garo **u**; used both in English and Garo words;
(ʌ) — a central vowel, occurring very rarely in English words only;
(i) — a high front unrounded vowel, corresponding to the vowel in the English word 'beat' but with no glide. The Garo **i** has several striking allophones; the boy, however, used just one of them for all positions. Improvement came at 2 : 3 when he began to make a consistent allophonic distinction between the **i** of open and the **i** of closed syllables. The next step in his speech development occurred at 2 : 8, when he came to master all allophones of the phoneme **i**.

At 2 : 7 the boy had not yet acquired the correct realization of the English diphthongs. He simply imitated the Garo vocalic system. Thus for the English [ei] of make [meik] he substituted the Garo sequence [e-ɪ] without fusing the English nucleus.

It is stated by the author that the boy's speech showed some phonemes that were distinctly Garo and others that were distinctly English, as well as many that were used in words of both languages. It might be said, however, that before 2 : 7 his speech could be most efficiently described as a single phonematic system, i. e. as that of Garo with the addition of a few phonematic distinctions which were not found in that language. In the course of the two months from 2 : 7 to 2 : 9, a systematic separation of the two vowel systems took place which made the description in terms of one single system impossible. The English vowels became fixed in their typical positions and also the English diphthongs were mastered perfectly. This was in contrast to the consonants, where, except for the addition of f and v the boy never went beyond the Garo system as long as he was in India.

As for the development of functional contrasts in the boy's speech, let us mention at least the following: the first contrast to be acquired, without much difficulty, by the boy was that of 'absence or presence of voice'. (We follow the author's terminology here, though it would be more correct to classify the English phonemes in question under the heading of 'fortis-aspirated/lenis unaspirated'.) Besides the said distinction of 'voiced vs. voiceless' the boy used several other oppositions that were found in neither of the languages he was learning. E. g. at 1 : 7 length was clearly used as a distinctive feature of certain words which represented noises, such as [di:di::] (to represent the noise of an automobile horn), or [ʔoʔoʔo::] for the oc k's crow. At about the same age he used a distinction which was based upon t one. He made, e. g. a fairly clear and consistent distinction between the words vapa] (father) and [papa] (bye-bye). Both words had unaspirated consonants and oiced vowels, but the former was pronounced with a higher tone and very rapidly, while the latter was pronounced with a lower tone and more slowly. Some other words seemed to have similar characteristics, but this pair was the clearest.

Stress does not have an important role in Garo; neither did any notable stress variations appear in the boy's speech. On the whole, the boy developed his phonematic contrasts in a comparatively short time and without much difficulty. This noes not, however, hold good for all children. Velten, for instance, notes a large

number of homonyms in his daughter's speech which appeared as her vocabulary outstripped her ability to produce phonematic contrasts adequate to keep all the items distinct from one another (cf. H. V. Velten, The Growth of Phonemic and Lexical Patterns in Infant Speech, Language XIX, 1943, p. 287).

Having disposed of the phonic aspect of the child's speech, the author turns, with equal thoroughness, to morphology and syntax. Though the boy's English never caught up with his Garo as long as he stayed in the Garo Hills, he developed a taste for speaking English with native English speakers. Occasionally when somebody failed to understand his still very foreign English, he would translate it into Garo, which being said more correctly, was easier to understand. At that time he had no difficulty in switching from one language to the other. The last time he ever used an extensive amount of Garo was on the plane leaving Bombay. After coming to his native country, however, he never used more than a sentence or two at a time. For a couple of months he would respond to Garo when Father spoke to him, but he refused to use more than an occasional word. After this, he even began failing to understand Garo speech, and within six months of his departure he was having trouble with the simplest Garo words, which he had known so intimately. This speaks for the fact that until the age of seven the speech of a child is very labile, apt to deteriorate completely after the loss close contact with speaking models.

Finally we wish to add some general observations on the linguistic development of Burling's boy and draw some comparisons with other children whose speech development has been described.

The earliest stage recorded here, with three oral plosives, three widely spaced vowels and two nasals, closely corresponds to the pattern which is characteristic of the first stage of speech of any child generally. The author's observations also testify to the fact that in their occurrence plosives precede fricatives, and to the fact that the phonematic contrasts are labile with children learning a language in which the said phonematic contrasts are common. In the examples adduced by the author we may find many other cases that show agreement with the speech development of children of other nationalities. Let us mention here at least that the progressive precedes the regressive assimilation, that in shortening the end of the word is preserved and further such phenomena as the reduplication of syllables, the onomatopoeic oddities of the phonematic system (as revealed by comparison of onomatopoeic with non-onomatopoeic words), perseverations etc. The only exception in this case would be the early occurrence of the velar plosives which in comparison with other plosives, appear as a rule much later. Burling's boy, however, used both alveolar and velar plosives at the same time. This might be well accounted for by a high frequency of velars in Garo on the one hand, and by their post-velar position, which produces a significant acoustic difference, on the other hand.

Viewing the child's speech as developing by successive additions of distinctions provides for the most part an efficient means for analyzing the progress. Some advances, especially the acquisition of the voiced/voiceless contrast, are systematic and add several new phonemes to the phonematic repertoire. Notable is also that situation, in which the child might use such distinctions as are not to be found in the language he is learning (above all the functional contrast of voiced and voiceles vowels and the functional distinctions of tone, length and stress). It might be suggested that learning a language is not only a matter of learning not to make certain phones, but also a matter of learning not to make certain contrasts that apparently arise spontaneously as a child first tries to speak.

he distinguished three vowel phonemes: a low, unrounded vowel, generally central (e. g. **a** in [papa]), a high front unrounded vowel (e. g. **i** in [kiki] — Kitty), a mid back, strongly rounded vowel (e. g. **u** in [tu] — door). From the quoted examples it is evident that at this stage of development he clearly distinguished three oral plosives in roughly the positions of **p, t, k.** Occasionally these voiceless plosives alternated with their voiced counterparts. Aspiration was very soon observed with the voiceless plosives while the voiced plosives were never aspirated. Besides these oral plosives the boy articulated two nasals, viz. **m, n** (e. g. [ma] — moor, [nana) — banana). In all, the boy's phonematic inventory included three vowels, five consonants and the distinction of voice and aspiration (cf. here G. P. Torsuev, Obuchenie angliyskomu proiznosheniyu — The teaching of English pronunciation, Moskow 1953, especially the author's view that it is the aspiration which is to be considered the most important characteristic of the voiceless plosives **p, t, k** in English, while the contrasts of voiceless-fortis and voiced-lenis are only secondary features).

At that time all of the boy's words were patterned either CV or CVCV: in the latter case, the two syllables were always identical. Decisive progress was noticed at the age of one year and five months when he suddenly learned how to use two different syllables in the same word, containing either different consonants or different vowels. Thus "Kitty" was then pronounced rather as [kiti] than [kiki] and one of his first Garo words was [babi] etc.

The said phonemes were first used for English words but soon began to be used for Garo words as well. For a considerable time he formed both the English and the Garo words with the help of what amounted to a single phonematic system; this means that for the first part of the record the existence of the two languages may be ignored.

About a month after his arrival the boy began to use a lateral **l**. Soon afterwards he started experimenting with affricates and spirants. As for the quality of these consonants, they were from the beginning very similar to the Garo phonemes. At about the same age the boy began to use a labiodental **f** in English words and with the proceeding refinement of the voiced/voiceless opposition he used a **v** for a short period as well. Garo, however, has no such phonemes, and presumably as a result, the labiodental **f** and **v** failed to become established, not to speak of the period, when they disappeared altogether and were replaced in English words by bilabial plosives. The disappearance of the labiodental fricatives is taken by the author for an indication of real transition of the boy to the Garo language. Everything that had preceded might be considered to be just as much English as Garo, but only Garo influence can account for the loss of the said pair of phonemes. (The boy began to use **f** and **v** again at two years and four months, but even at two years and seven months, i. e. a full year after they had first appeared in his phonematic inventory, these consonants were inconsistently articulated.)

At 1 : 7 (i. e. at the age of one year and seven months) two new phonemes appeared in the boy's repertoire. They were the **w** and the **h** and occurred both in English and Garo words. Phonetically these phonemes were similar to their English counterparts. At 1 : 9 the boy added the velar **ŋ** to his phonematic inventory. As this consonant occurs initially neither in Garo nor in English, its appearance has to await the development of more complex syllables.

In addition to this phoneme, there was only one other consonant outstanding in the Garo phonematic system, — a voiced counterpart of the affricate **c**. It first appeared at 1 : 10, but for several months it was used only irregularly, and was

frequently substituted by the plosive **d**. It had been well established at the age of two years and three months, and thus the boy had mastered all the basic phonematic distinctions of the Garo consonants.

Correct pronunciation, however, involves more than simply keeping the phonemes distinct from each other; further refinement of his consonants consisted in increased precision of articulation, wider distribution of some variants, growing sensitivity to allophonic distinctions, and last but not least in better mastery of consonantal clusters. A suitable example of the way in which the child gradually gains precision in his articulation is provided by the velar plosives **k, g**. The boy under observation had produced them ever since he arrived in the Garo Hills. They could, however, be described only as velar plosives. A few weeks later his **k** and **g** settled into the far back post-velar position which is characteristic of Garo. As the boy interpreted English **k** and **g** in the same way, he gave a distinctly foreign quality to English words with these phonemes.

At the age of one year and six months his syllable pattern was expanded to include the CVC pattern. The first final consonant he used was the plosive **t**. Final alveolar **n** and final velar **ŋ** appeared at 1 : 9, final **m** and **l** at 1 : 10, final **k** at 2 : 0. The consonant **p** came to be used finally as late as at 2 : 4. From the beginning his final plosives were unreleased which is in accordance with the Garo allophonic pattern.

A special place in the Garo system is taken up by the phoneme **r**. Initially it is a flap, while finally it varies from a lateral **l** to a sound intermediate between a lateral and a flap. In the beginning the boy pronounced every instance of this phoneme as **l** (which is a typical feature in child's speech generally). At 2 : 3 he began to attempt the articulation of the vibrant and succeeded in correct realization at 2 : 5. Ever since, in newly acquired words, this consonant had been pronounced correctly, while in words firmly fixed before the lateral **l** continued to be pronounced.

We have been said above that the boy's basic phonematic distinctions of the Garo consonantal system were well established at 2 : 3. The English consonantal system, on the other hand, had not yet been completed by 2 : 8. Even then one single phoneme **s** was used in place of the four English phonemes **z, ž, s, š**. Though the boy succeeded in making a voiced spirant in imitation, he never did so spontaneously. He replaced the English **r** by a bilabial **w**. Postvocalically, however, he omitted it altogether. It is interesting that he never used the phonetically very different Garo **r** as a substitute in English words, though he was well acquainted with its realization by this time. The spirants **θ** and **ð** were replaced by various other sounds (mostly by **d, t, f, s** as it is common with other English speaking children).

As for the consonant clusters, they were — in accordance with the observations of all other pedolinguists — without any exception simplified. The first cluster to appear in the boy's speech was the combination of a plosive + **r** which is the commonest consonant cluster in Garo. (It was established at 2 : 5.)

In the course of the development of the boy's speech, the vowels were always much less clearly defined than the consonants, and were far more variable in successive utterances. Only by 2 : 1 his vowel system was defined well enough and his articulation sufficiently precise to allow of a synchronic description:

(e) — a front mid, unrounded vowel, close to the correct position of Garo; used both in Garo and English words;

(æ) — a front vowel, distinct from (e); used in English words only though these were generally incorporated into Garo sentences;

As for the problem of bilingualism generally, let us quote here Werner F. Leopold's view that a striking effect of bilingualism is the looseness of the link between the phonetic word and its meaning (cf. W. F. Leopold, Language Learning V, p. 13). He gives the following example. His daughter never insisted on a stereotyped wording of stories. Leopold believes that this was due to the fact that she was accustomed to hear the same thing constantly designated by two different phonetic forms, so that form and meaning were not rigidly identified with each other. This, however, does not hold good for Burling's boy. Though he knew two expressions for one and the same word, he instantly protested against the slightest alteration in any familiar text, which is, generally speaking, the common experience of all parents.

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The other paper dealing with pedolinguistic problems was published in Phonetica under the title How do Children Acquire the Use of Language. The study deals with the child's gradual mastery of the use of language in general, not merely with the development of infant articulation. The author appreciates that the child's acquisition of language has been being studied for many years. But though our knowledge of the development of children's articulation, of retardations, of developmental dyslalias, of children's vocabulary etc. has grown in recent years, our knowledge of language behaviour in children and of the influences related to its development still contains considerable gaps. And it is just these influences that call — in the author's view — for systematic research. Comparative studies in different languages and cultures would have to provide sufficient material and to determine the extent to which biological, sociological and educational factors affect the child's acquisition of language.

The main problems the author concentrates on are the following: A defficiency of many an investigation dealing with speech development is that no clear distinction is made between the acquisition of the active use of language on the one hand and the development of articulate speech on the other hand. These two functions, though intimately interrelated, are fundamentally different. No matter at which stage of speech development, the child makes a double performance in the sphere of sound production. In the first place he endeavours to acquire sounds and sound combinations in accordance with the phonematic system of sounds in his language environment, at the same time excluding other sounds or sound combinations. This is a mental procedure which, however, the child is obliged to effect during the articulation of sounds. It is therefore necessary to distinguish disorders and retardations of articulation on the one hand from difficulties in the psycholinguistic sphere, especially in the active use of language on the other. These two developments do not proceed with complete parallelism. Some children exhibit remarkable motor skill but their mastery of the linguistic system lags behind. Others, however, know what they should articulate, but insufficient articulatory coordination may not permit them to realize the phonemes and phoneme combinations.

A similar opinion is applied by the author to word- and sentence formation, to the use of pronouns, to flexion etc.

The general contention that in their acquisition of language children imitate the language of the adults is — in the author's view — a mere simplification of facts. He maintains that the adults adapt their language including the choice of words, sentence construction and sentence melody to the developmental stage of the child (the author speaks about seven such stages). In no case, however, does the adult

speak to the child as to a contemporary. A fundamental difference is in the temporal accent (in addressing the infants slow speech is employed with obvious pauses between words and word groups and particularly between sentences). A notable difference appears also within the sphere of the musical accent (simple sentence melody and absence of secondary melody waves are striking phenomena in the speech of adults towards small children). And last but not least, in speaking to babies the dynamic accent is obviously diminished.

By way of conclusion the author suggests that parents and teachers have to speak systematically in different ways corresponding to the developmental stages of the children. This approach of the adults and their influence on the child's acquisition of language deserve increased attention in future pedolinguistic studies.