

## LANGUAGE DEVELOPMENT IN CHILDREN

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By language development, in the first instance, I mean the study of normal language development - the reason being that, while I am certainly interested and have worked a little in some areas of language disorder, it seems to me that before we can make any real head-way in this field we need to have a fairly clear idea of the goal towards which we are working. Presumably in our case the goal or ideal - whether we can reach it or not at present is another matter - is normativeness. That is, when we are working with a child or an adult who is disordered in some sense, we have at the back of our minds an idea of the normal state of the language towards which we are trying to direct the language of that child or adult. It may be simply a vague idea, it may be no more than a pale reflection of the language we use ourselves; or it may be a more systematic awareness of what is normal structure for the dialect area that we are working within. But whichever of these things, we have at the back of our minds an idea of normal language development, and this is something which inevitably organises to a greater or lesser extent our remedial work.

Moreover, unless we have got some kind of general idea of a norm of language development, a kind of maximum of maturation towards which we are trying to direct children and adults, it is very difficult to assess levels of achievement that are reached. One teacher might be at a given level, another teacher might be at a different level with a particular kind of case. But unless there is an identity of direction in their work - some agreement as to the direction along which both are going - we are not really going to be able to compare the achievement and the progress of the individual parties. And how can there be an identity of direction without some generally agreed goal?

I consider normal language development an indispensable perspective for the study of any kind of "abnormal" language development; the normal development is a background, a kind of yard-stick against which we can tentatively assess progress in any work on disordered language.

The second preliminary point follows on from this. The reason why we need to spend so much time trying to work-out a norm of language development is because it is not something which can be done casually. Linguistics - the science of language - has not been going for very long. In this country it has only been operational in universities for ten years or so, although it has been going a little longer in the U.S.A.

Why do we need a science of language? Because it has emerged in the last fifty years or so that language is far more complicated in its structure than anyone had previously anticipated. There was a time when one could pick up a little book of twenty or thirty pages and say that this was an adequate guide to the pronunciation of English, or a grammar book of perhaps a hundred pages and say that this was a complete grammar of the language.

There was a simplified view of the structure and function of language. It was assumed that in order to teach about language one simply had to be a fluent speaker of that language and no more. If linguistics has done anything by its systematic study of language over the past ten years it has demonstrated quite clearly one single very simple fact and that is that language is complicated. The reasons for the complexity we will consider in a few moments. But it is because language is complicated, with so many facets each of which is a kind of technical study in itself - phonetics, syntax, vocabulary and so on - that we have got a full-time study developing of it. It is no longer the sort of study that can be done part-time. Certainly teachers who have little or no time to carry out 'fundamental' research on the language find that it helps to have a full-time department

doing that kind of research.

As a linguist, what I am doing is full-time research into English and other languages trying to establish what the facts of usage are, what the facts of development are, how to find out about such facts and to describe them precisely. These are the three applications of linguistics for our work with hearing impaired children. It can help to find out facts about the language, an empirical contribution; it can help to produce more consistent ways of finding out the facts, a methodological contribution; and it can make a theoretical contribution, by establishing explanatory principles, on which to base analysis and assessment.

The empirical contribution of linguistics is in finding out structural facts about the language. It is surprising how little we know about the structure of our own language if we consider such questions that might reasonably be asked in the context of child development. What is the order of acquisition of the different sounds, such as the vowels and consonants, that the child will acquire? Which are the first consonants that a child learns? Which come after that? Is there an order? Is there a consistent order? Or, to take examples from syntax, which tense does the child acquire first? Which comes next? Is there again a shared order of development? At what age does a child become able to use relative clauses, or passive voices?

These are all straightforward factual questions, but the answers to very few of them are known. Certainly the answers to none of them come readily to mind! An experienced teacher has developed an awareness of this kind of thing over the years, but it takes time to become experienced, and meanwhile there are newcomers into the profession who need to be told. The telling about language in systematic, precise ways is what I mean by linguistics.

The empirical role is so important that I will spend the remainder of this lecture on it after I have dealt briefly with the other two roles; because, unless linguistics and its application to language study can provide us with some clear facts about language development, its relevance immediately diminishes.

The methodological role. It is sometimes forgotten that if you are trying to establish norms of development and decay in language that this requires a fair amount of preliminary research. You have to take a large number of children or adults and study their language systematically, ultimately comparing their various levels of development, and correlating these with, for example, their age, intelligence and other factors. Until very recently many people simply assumed that language development could be studied simply with reference to age. That is, you would say, "He's speaking quite well for a two and a half year old", or "He's got a lot of vocabulary for a three year old". These simple statements of this kind are very often still made. The point which has to be emphasised is that while age is certainly an important index of development, it is by no means the only important index. It is becoming quite clear, for instance, as research goes on, that socio-economic class is a major factor in determining the rate of language acquisition. That is, if you take a child who comes towards the bottom end of the Registrar General's classification and a child who comes towards the top end, this kind of distinction will correlate a great deal with level of language maturation. Given a three year old child in these two categories the amount of language that has been acquired is certainly different, and this has been shown. Likewise, if you compare a three year old English child with a three year old American child there are considerable differences. Again, if you compare a three year old girl with a three year old boy there will tend to be differences at that particular age.

This range of factors - sex, age, intelligence, socio-economic class and even the context of the recording which you used to carry out the research - is going to effect the kind of language output you will get. If you want to compare two samples from two different children, precisely, you have to make sure that the contexts and back-grounds of the two children are made absolutely unambiguous. Otherwise you are comparing two things that may not be comparable. Until very recently this care to ensure that a

great deal of detail about the child's home, parents, regional dialect, was not made explicit.

This is what I mean, largely, by the methodological contribution which I think a linguistic awareness can provide. I am not suggesting that everyone has to do linguistics, in an academic sense, to be able to do this sort of thing properly. I am simply saying that we all need a more conscious awareness of linguistic principles than is often to be found. Put briefly, we need to know what we are doing. We cannot simply take two children of identical ages and assume that they will have comparable outputs.

The theoretical contribution of linguistics is perhaps more important than the methodological one. Theoretical is a dangerous term because persons concerned with practicalities may consider theory to be an academic exercise that does not affect them. I want to argue here that it is impossible to leave out theory from our considerations. Even if we are engaged in the most practical piece of remedial training, some theoretical assumptions must necessarily be involved in what we do. My argument is that the more we are aware of what we are doing the more likely we are going to be to achieve success in our remedial work.

By theoretical assumptions I mean the principles that we are working on, the things that we are taking for granted and assume to be the case. Things that we would never think of arguing about until we come across somebody who has quite a different view and who operates in a quite different kind of way. I am not going to talk about the range of theoretical assumption that would relate to fields about which I know very little. I shall talk solely about some that deal with language. For instance, let us consider some assumptions about terminology. It is inevitable that we must use some terminology in our work. As soon as we want to report what we have done to somebody else we have to use some kind of terminology. It is essential to be as clear in our minds as possible as to what the terminology actually refers to. It is too easy to assume that because your terminology is clear to you it is going to be equally clear to somebody else. Even some of the most obvious terminology, such as the labels we use for the parts of speech, is sometimes assumed to be much clearer than in fact it is. If we say "What do we mean by a noun, or a verb, or an adjective or an adverb?" we only have to look at the way in which these terms are used to realise that there is considerable disagreement about them.

If a comparison is made of the words labelled 'adverbs' in, say, the Oxford English Dictionary, it becomes apparent that there is a variety of usage. For example, there are words ending in *-ly* which modify verbs, such as *slowly* and *quickly*; words which modify verbs, but do not end in *ly* such as *soon*; words which do not modify verbs, but modify sentences, such as *however* and *moreover*; words such as *very* and *carefully*; interrogative elements such as *what* and *where* are sometimes called adverbial; a word such as *not* may be called a negative adverb; *yes* and *no* are sometimes called response adverbs; even the definite article is called an adverb, when used in phrases like *the more the merrier!* Thus the adverb becomes a kind of rag-bag for miscellaneous words in the language whose status might otherwise be indescribable.

One could argue in the same way about nouns. Does one include proper names such as *John* and *Daddy* as nouns? Some schools say that proper names are one kind of noun. But an equally strong tradition in Grammar says that proper names are quite separate from nouns, as they do not function as 'common' nouns do. For example, proper names do not have plurals in the way that other nouns do. These are questions which involve us in knowing, at the very least, how we are using our descriptive labels, if we want to analyse language precisely. A lack of awareness of the basis of the labels we use can cause serious problems, and create ambiguities.

A more general terminological problem exists in the case of labels such as 'sentence' and 'word'. These are technical terms, and present the same problems of definition. This arises in the case of the very common notion of the first word used by a child at around the age of eleven or twelve months.

In what sense is it a first word? In one sense, it is a first word, in that it is a

linguistic unit which seems to have a separate meaning: when the child says "dada" the parent associates this with some object in the real world and when the child uses it consistently claims that the child has used its first word.

But is "dada" not really a first sentence? The distinction between word and sentence immediately becomes an interesting one. When the child says 'dada' it does not mean the dictionary definition of the word "father". The child actually means "there's daddy" or "I want daddy" or "daddy pick me up", and so on, in the context of the situation. "Dada" has a diffuse, vague meaning which the child manipulates in the various contexts, using its gestures, facial expressions, intonation and other factors to mean not simply a single word, but the equivalent of a sentence. There are many definitions of the term 'sentence' one of which runs 'a unit of speech or writing which has a complete sense and is a self-contained grammatical unit'. Whatever we call a sentence, a child is certainly doing all that when it says 'dada' - this is both a unit of sense and is grammatically self-contained. Thus 'dada' used by an eleven month old child is just as much a sentence as "there's dada" of an eighteen month old. It is not as fully formulated because the child has not learned to develop the more complex rules of syntax.

If one carries this argument to its logical conclusion why should one stop at the neatly formulated "dada"? Why not go to nine months where the child cannot formulate 'd' accurately but may say "gaga"? Or even earlier. Why not say that these sounds are a sentence? As soon as we get the reaction of parents such as "He always says that when daddy walks into the room", the child has begun to use a particular aspect of his vocalisation consistently, is attempting to express some kind of meaning and is striving towards a sentence. But because it has not got a perfect phonetic form it does not mean that we can disregard it and say that it is functionless. On the contrary, the utterances of an eight-month old are beginning to move in the direction of a syntactic, although primitive, expression. There is a gradual movement and one can see it in retrospect. For instance, I have taped examples of a child that starts off at seven months and progresses from random vocalisation through to the vowel components of "all gone" but with incorrect consonants and finally to correctly articulated vowels and consonants. The first sound was in the very regular intonational curve which developed at around seven months, although "all gone" was not articulated completely accurately until well after twelve months. In retrospect one can see this continuity of development. But why should "all gone" be a sentence and the initial vocalisation not be a sentence if there is this continuity of development? I regard them both as sentences although the first is an embryo sentence and the latter makes more use of the adult forms of the language.

The notion of "sentence" has, then, something about it which needs to be carried through into the first year. Otherwise, how do you explain its development? You cannot suddenly say that at eighteen months the child will start saying sentences because at about this time the child starts stringing words together. The child has been communicating meaningful units long before this, and these have to be given some sort of description.

The implications of what I have been saying for many aspects of language disorder should be fairly clear. If it is the case that a child is developing its sentences from as early as seven or eight months it means that the child is beginning to develop its language from about seven or eight months. This may be a surprise to some people who think a child's use of language starts in terms of vowels and consonants and sentences of a more complex kind. But, there is far more to it than this. We can see that particularly clearly if we look at another aspect of the development of language in the first year, where, from the babble or infant vocalisation stage of development, the child has begun to use certain aspects of its vocalisation selectively which reflect the pronunciation of its own language environment. Previously, before the age of six or seven months all normal children babble identically. French, German, Italian and, in fact,

children of all nationalities sound the same at three months. It is at about seven months that they begin to sound different. The difference lies in intonation and rhythm. At about seven to eight months the child starts to develop characteristic intonation patterns long before it starts to develop vowels and consonants at around ten months. At about seven months the characteristic English intonation patterns begin to emerge, with their rising and falling tunes, and so on. You can begin to hear characteristic differences between say, French and English children as early as seven months.

The implications are obvious. If it is the case that a child begins to pick up - by a process of imitation - the pronunciation patterns of its language by the age of about seven months, then, if the exact patterns which are being acquired can be specified precisely, it is clear that a child who is not yet diagnosed as deaf will, from this particular age, fail to pick up these intonation patterns. The implication is that the age for diagnosis can be lowered if we pay attention to intonation, rhythm and so on. We know of the notion of a 'deaf voice' with certain intonational and rhythmic flattenings that people can detect at fifteen or even twelve months, but not usually much earlier. It would be nice, it is argued, if we could find certain clues indicating that there may be some hearing deficiency earlier. If we listen for the right sort of thing, it may be possible to lower the age of diagnosis in this area.

One must not under-estimate the range of complexity that this area of pronunciation manifests. This is what I meant earlier on when I said that there are many facts about language that we do not know. For many people not experienced in these matters the full range of vocal effects which go under the heading of 'pronunciation' are not known. They know about vowels and consonants and syllables. They know about intonation and rhythm. But when we analyse the full range of complexity that goes on here it is not difficult to be surprised. For example, I have seen people write about children's role-playing, at about the age of three to four and afterwards. By this they usually mean the child adopting for the purposes of playing with his friends, or what have you, a different social identity. He is being the grocer or daddy or whatever it is. 'Role-play' has a wider definition than this, of course, but this is the sort of thing that I mean. Now, when the child is being the grocer or daddy the child adds the linguistic characteristics of these persons as well. Children from three and a half to four can do a pretty good imitation of other people. But, it must not be forgotten that babies can do this as well, although this is not often mentioned. I have tape-recordings of children of eleven and twelve months role-playing in this kind of way. I have a tape-recording of a child in his cot with a panda on one side and a teddy on the other side babbling to these two animals with him providing their replies. When he is being teddy he adopts a falsetto tone and when he is being panda he adopts a chest-voice tone. Systematically, he only uses the falsetto tone when in the direction of the teddy and the chest tone when in the direction of the panda. There is a clear awareness of different styles of vocalisation from as early as eleven months and it may be possible that children do this earlier. There are many contributing factors - especially the intonation or pitch movement of the voice, loudness, rhythm, the speed at which the voice is moving, and degrees of vocalic tension - all of which the child can introduce into its voice from a very early age. (By 'tension', I mean such vocal effects as are described by novelists as 'a harsh metallic croak crept into his voice'. You get such tension variations in nine-month olds, along with breathiness and laryngeal effects of various kinds. These 'tones of voice' are used consistently in appropriate situations.)

Being aware of the problems to do with the notion of sentence and tone of voice leads us to a consideration of what we mean by a sentence and how a sentence is expressed. Very often a child expresses its sentences not solely by vocal means, but by gestural means also. I do not mean gesture in the sense of a systematic sign 'language', I mean gesture in the sense of 'natural' iconic gesture. When the child says "What that one", and points. Or when the child says "dada", with his hands outstretched as opposed to pointing. The

two different meanings of the sentence using the same word, "dada" may be achieved by means of using the gesture.

Of course, this implies another general principle which is not by any means totally agreed, but at least each of us has to make his position clear. Shall we allow that this kind of gestural behaviour - sometimes called kinesic behaviour - should be considered as part of language study, or not? My answer is that it should. It is important for at least the first two or three years of language behaviour to take into account the range of non-vocal means of communication that the child has at its disposal and not just concentrate our language study solely on the vocal means. You may say that you never do, but always refer to gesture. But, in fact, many language scholars take a rather narrow view of language and try to see it in a vacuum, away from the communication situation, studying it separately. There is some motivation for doing that, of course. The structure of language is so different from the structure of gestures and facial expressions that we have to take it out of the communication situation sooner or later because its unique complexity demands independent study. But if we do take it out of the communication situation we have to remember to put it back in again at some stage or other, otherwise we tend to get the rather distorted account of communication which we know very well is sometimes perpetrated upon us.

These general principles, such as the need to be precise in terminology, the need to be aware of how we use terms and to make sure that we use them consistently, the need to be aware of certain general principles governing our study, illustrate something of what I mean by 'theoretical awareness'. In trying to illustrate it, however, I have come back to my first point, where I was talking about empirical approaches and the need to find facts, because I was illustrating from an area of pronunciation ('tone of voice') where little is known. Let me now illustrate some other examples of factual development, taken from fields other than pronunciation, or phonology.

If we ask the question, "Does the child acquire the syntactic structure of its language in an ordered way?" the answer which can now be made is "Yes it does". This does not mean to say that all children acquire linguistic structures at exactly the same rate, because of the facts I mentioned before. We may not say that by three, for example, the following structures will be present in a child. All we can say is that there are a number of language characteristics which a child from two years nine months to three years three months will be likely to have. It is a statistical notion of probability. Because a child has not got a particular structure, it does not mean that it is deaf or mentally retarded. Whenever we talk about particular ages, it is important to be flexible - to mean plus or minus a few months depending on such factors as sex, intelligence, socio-economic background and all other factors of this type. But granted this, it is true to say that the order of development of sounds and structures does seem to take on a consistent pattern.

For example we can take a specific construction, such as a particular tense form or a particular type of sentence structure, and show how the child moves through certain stages in order to acquire that structure. How does a child acquire the ability to produce questions? We can trace it through various stages. He does not just acquire the ability to produce a question overnight. On the contrary, in the first stage the child simply uses intonation as his index of question. The child will make a distinction by saying dada with a rising tune to connote puzzlement, etc. The second stage is the introduction of a specific question word, what, why, where, which, etc. A question word simply attached to a statement, appended to the beginning, usually the beginning. "Where dada?" "Where my teddy?" Note that it is attached to the question word plus the sentence. If the child is producing the sentence "daddy is in garden" at eighteen months and he wants to change this to a question he adds the question word as in "why daddy is in garden?", not the adult form of "Why is daddy in the garden?", which displays the altering of the verb to go before the subject. The next stage is where the child begins to develop the alternative question form which requires a yes or no answer. "Are you there?" Then, the child

learns to use the inversion as also being an indication of question. But these two levels of questioning (a) using a question word such as "what" and (b) using the inversion mechanism, go independently for a while. A child at a given age might be inverting his verb and subject in some cases but not inverting them in some others, "are you there?" and "why you are there". The later form of the question "why are you there?" contains both features. Later still, other things happen, such as bringing-in the negative word into the right place in a question. This is a very complex procedure. It is not self-evident where to put 'not' in a sentence. Wrong possibilities, often used by children, are "why no is daddy coming?" "why daddy is coming not?" "why not daddy is coming?". "Why can't/ isn't/doesn't . . . . .?" presents a further stage and a fresh difficulty, as to a child there is no similarity between doesn't and do. They do not sound the same and their meaning is not the same. It takes a while before a child realises that in order to form a negative of an English sentence, most of the time we totally alter the verb that the negative element is attached to. Can becomes can't, do becomes doesn't, must becomes mustn't, etc. There is a considerable difference, and this is one reason why the child does not require the negation element in his sentences until quite late.

These are stages of development. They seem to be regular stages through which children pass. I say 'seem', because not all that many children have been studied. A few dozen children only have been studied in minute detail to produce this kind of normative information. But the children that have been studied display a regular progression of development in their syntactic form. And not just for questions, but for other grammatical constructions as well - for the development of negation, tenses, word order, relative clause use and so on.

When does the process stop? This is another thing that has begun to be studied. People have often assumed that the process stops quite early on, that by the age of about five, the 'basic grammar' is all mastered - people have gone on record as saying that by the age of five children have stopped learning their language and for the rest have only to learn to read, write, and adopt a few 'stylistic' felicities. But the evidence now suggests that basic grammar, in the sense of new grammatical constructions that the child could not have expressed or interpreted previously seems to go on until the age of about eleven or twelve. For example, here is a well-studied structural contrast which the child does not acquire until well after five: "John is easy to please" and "John is eager to please". On the surface the forms of these two sentences look identical. One would be forgiven for thinking that the two sentences would be analysed in the same way. But this is not so. In the first sentence John is the person who is receiving the pleasing, it is easy to please John. In the second sentence John is doing the pleasing, he wants to please somebody else. In the first sentence John is the 'logical' or 'deep' object of the verb, while in the second sentence John is the 'obvious' subject of the verb. Although we may regard this as simple, as adults, we had to learn it once. When did we learn to make the distinction? We can prove it by experiment. Take a little doll and blindfold it. Then ask a child, "Is that doll easy to see?". If the child says it is then he has learnt the distinction, but if he says that it is not because it has a blindfold on, then he has not. At what age does a child actually learn to make that distinction? Usually not until after seven.

There are other syntactic distinctions of this kind which 'on the surface' look the same, but underneath are totally different. For example, "Ask your brother to come in here" and "Tell your brother to come in here" may be similarly contrasted. The distinction between ask and tell is also not acquired until quite late.

These are illustrations of what I mean by the empirical aspect of language development. All the facts of language development are not yet known. Some areas have been studied in detail, but it takes about two years full-time study to work out all the stages of development in one topic, such as questions or negation. It takes a lot of time because of all the methodological preliminaries which have to be gone through to ensure that any sample is viable, and also to ensure that one's theoretical position is consistent.

It is only recently in the last two years that people have begun to get enough information together to be able to write even introductory books on the subject. A book has been published this year and is the first of its kind, although selective and rather technical. It was written by P. Menyuk and called The Acquisition and Development of Language. (Prentice-Hall) Basic research in normal language acquisition has been scattered over a number of years. How far has this information been applied to the study of language disorders in any sense? Only very selectively.

The British Journal of Disorders of Communication is one journal which has tried to introduce linguistic research to its readership. Half a volume in 1968 was devoted to language problems, and a number of linguists contributed normative information of this kind and tried to apply it to specific language disorders. Another number to be published in April 1972 will be totally devoted to linguistics and its application to language and speech disorders.

It is quite clear in principle how this kind of information can be applied. At Reading we have had a number of very useful sessions where I would sit on one side of a table and try to present normative information of this kind and speech therapists or teachers of the deaf would sit on the other side and we would try to work out to what extent some of my generalisations could be, in some sense, used as guide-lines to direct remedial work. Can one possibly, using these techniques, grade structures into increasing orders of complexity, for instance, so that the less complex sentences would be presented before the more complex sentences? The answer is yes; in some areas of syntax this can be done. It can certainly be done for pronunciation, where grading the complexity of spoken forms is now fairly well established. The Edinburgh Articulation Test which came out in 1971 is perhaps the most well-developed example of collaboration between linguists, phoneticians and speech pathologists.

Applicational studies of this kind are still in their infancy and one hopes that in the next few years more and more work of this kind will go on. But meanwhile, all we can hope to do is simply to raise characteristic problems, to provide, as I said at the beginning, a sense of the principles on which we are working. A more principled remedial education is the way I would try to summarise my own attitude to this. 'Results' from linguistics are at present few and far between, because, as I've said, linguistics is still in the early stages of talking to people involved in pathology, and it is still unclear to what extent its results can be applied realistically to various specific problems. But at last now that people have started talking, one hopes that, over the next year or so, more group work will continue, more and more publications will emerge and ultimately some large-scale manual of language development studies will be produced for use in a routine way.