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COMMUNICATION BEFORE LANGUAGE

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THE ACQUISITION OF REFERENTIAL LANGUAGE

The child who can say [m̩m̩] s she reaches for food and [ɛɪʊ] as she lifts the telephone, has acquired a fundamental skill - how to communicate through gestural and vocal signals. But she cannot be said to be using language. The signal is not symbolic; it is restricted to a limited context, and it is personalised - families and friends learn to interpret the child's individual code. In order to communicate unambiguously about the world with other people, the meanings of words must cease to be exclusive to the child and her immediate circle; she has to acquire the meanings which are held in common by the community of language users to which she belongs. At about the same time that G was using [m̩m̩] as a signal to request food, she began using two words to name objects:

[dʌdʌ] for duck was used to identify and name, first the toy duck in the bath, and then very swiftly, real ducks on the river, and pictures of ducks in books. She seemed to learn the association through the teaching strategies employed by her parents, who played repeatedly with the duck, naming it, asking her to find it, and reinforcing any sounds made by G that came close to duck. Finally, one evening in the bath, she pointed and said [dʌdʌ]. This was true referential naming - she clearly did not want the duck, but she indicated that was what it was - and went on to 'set up' a class of duck-like referents to which the name could be applied.

[bɒhɪ] bottle was flatted spontaneously, without any active teaching, although as it was a morning ritual to fill it with tea, she had plenty of opportunities to hear the name. One morning she reached for it, naming it simultaneously, then looked immediately at her parents. In this case it seemed clear that she had somehow grasped the idea that the bottle had a name, and that an efficient way of getting what she wanted was to use it.

Bottle, duck, are potential words in a way that [m̩m̩] is not. G has taken a step away from signals to symbols. When she reaches towards her bottle and names it, she is not only expressing her desire - "I want" - but simultaneously naming the object involved. With one word she may be said to express two "ideas" that is a bottle and I want it (Lock 1980, Halliday 1975).

We have to be very cautious about crediting the child with linguistic knowledge at this stage, but her words begin from this point to take on a locutionary dimension. She is beginning to use words not just to do - serving pragmatic intentions or illocutions - but to mean, with semantic force. Context, and intonation, as Braunwald (1978) points out, is all important in determining whether or not what a child says is counted as a 'word'. Thus [ba] said when looking at a ball, was understood by the mother to mean 'ball' but "ba ba ga ba" as the child played with her food, was interpreted as babble. This kind of selective interpretation by adults undoubtedly helps to refine the child's production and application

of potential words. We have seen how intentional communication grows out of the interaction between adults and babies. As the child's vocal language progresses, he comes to use words in combination with gestures, to realise his pragmatic intentions - performative acts, like the proto-imperatives and declaratives described in the previous Section. But how does the child move from this stage, where communication with his intimate circle is usually very efficient, to the ability to express, not only his immediate intentions and feelings, but aspects of the world around him? Is there any continuity between prelinguistic and linguistic communication - or does language appear magically out of thin air?

One current line of argument is that language and communication, although inter-related in their development, arise from different sources:

“the majority of the child 's early words may be considered as vocal gestures having two historic roots; firstly a communicative function, the development of which may be traced back right to the earliest transactions the child has with the real world; and secondly a referential function which likewise has preverbal antecedents”. (Lock 1980).

The communicative function to which Lock refers is of course the illocutionary force of an utterance, for example where a child raises his arms saying 'mummy' as a part of his desire to be picked up.

The referential function, e.g. where the child says 'mummy' and means a particular class of adult female is that property of language which enables us to represent reality to one another through words (see Section I, pages 15-22). The most obvious and dramatic development towards referential language is the use of words as labels for objects and events which become generalised to other objects and events with similar properties - and as we shall see, researchers have tended to concentrate on this aspect of language and ignore its other dimensions.

Reference, however, is only one of the dimensions which distinguishes linguistic from nonlinguistic behaviour. The others are predication and grammar.

The theories of Jerome Bruner suggest that there is no distinction between the acquisition of communication skills and language. Instead he presents a model in which communicative acts flow in a continuous process towards linguistic acts. His work is concerned, not just with identifying the kinds of context in which children learn to name objects, but with the possibility that the very structure of adult-child dialogue carries the seeds of language development.

The following sections will consider, firstly the development of reference, and the question of how children learn to name; secondly how they come to distinguish between topics and comments, and thirdly, the possible precursors of grammatical knowledge. This involves returning to the ground covered in previous chapters and reinterpreting the material for its potential linguistic significance.

REFERENCE

The Development of Object Naming

At the stage when he is using vocal signals, the child has some idea about indicating in general - bringing objects to the attention of others (see protodeclarative, P15, Vol.II, 2, Section III, page 48). He develops the ability to point, and may use a consistent sound in association with his pointing. But the vocal equivalent of a point is not an object name, but a deictic indicator such as that or there. How do object names become incorporated into acts of indication and request?

Researchers have tended to concentrate on how the child sets up the conceptual categories to which he attaches labels (see Bowerman 1978; McShane 1980; Volterra et al 1979, for reviews of this field of study and discussion on word meanings which follows). Less attention has been directed to the problem of how he comes by the principle of naming in the first place (McShane 1980). Part of the problem is that, in McShane's words, "we can never observe concepts directly, we can only make inferences on the basis of behavioural evidence". What we observe is the teaching - by the mother - and the learning - by the child - of specific associations, but what the child has to discover is the principle that things have names.

Two hypotheses have been proposed:

- (1) that naming results from a sudden insight
- (2) that naming is part of gradual transition from non-referential to referential behaviour.

Naming results from sudden insight

This theory advanced by McShane and by Lock, proposes that children are practised in indicating aspects of their world, through pointing, and have associated consistent signals with particular events. They begin by acquiring labels simply as sound patterns associated with specific objects - "the child first learns the words, and later learns that these words are names" (McShane 1980) in a manner which parallels his development of performative signals, i.e. they acquire the form before they understand the meaning. Children then perceive, relatively suddenly, that things have names. This new insight leads them into a different way of categorising and thinking about the world, which represents a step away from egocentricity.

In psychological terms, this appeal to insight is not very satisfactory. How do we know that the child makes this spontaneous leap of thought? However, there is a certain amount of evidence that children do acquire labels rather suddenly, and that they then begin to "name for the sake of naming". Shortly after they have acquired a few object labels, children's vocabularies often increase dramatically.

This usually seems to occur around the middle of the second year, and was found in varying degrees in 5/6 children in McShane's 1980 study. Secondly, children often begin to suddenly play the 'name game'; going round the room labelling objects and furniture, or even asking for names (Lock 1980). Thirdly, they begin to use words in new ways to anticipate, to talk about absent people and objects, and thus showing an understanding of the stable relationship between name and referent that is preserved across a number of contexts. Fourthly, the nature of children's over-extensions at this stage indicates that conceptually they are constructing 'classes' of referents for names.

Further support for the 'sudden insight' theory comes from phonological analyses of early child speech which have found a discontinuity between the babble type form of vocal signals, and the kind of imitations of adult models which enter the child's lexicon at this stage of expansion (Carter 1978; Menyuk, & Menn 1979). Ferguson 1978, suggests from his findings that early words have consistent CV*, or CVCV* structure, where a syllable is wholly or partly reduplicated. Only when he has a small vocabulary of adult type words, does he begin to actively construct phonological rules, using two or three 'favourite' words as a base (see Menyuk & Menn 1979 for some more examples). In support of the theory then, we have evidence for a sudden increase in vocabulary, supposedly as a result of the principle of naming being acquired; that new patterns of word use emerge, and that the phonology of referential words differs substantially from that of proto-words.

Naming is a process of gradual transition

It seems reasonable to propose that the child must discover the principle of naming in order to move out of the egocentric stage of sensori-motor indication. However, not all researchers would want to represent the development as discontinuous. The work of Bates and her colleagues suggests rather a process of transition from non-referential to referential speech, with naming associated with a later stage of cognitive development than communicative signalling. According to this line of thinking, early labels (like Nigel's [bø] from the Table in Section III, page 46) are performative in the same sense as other early words. They express the child's involvement in an attention schema, and although potentially sources of objective reference, for the child they are no different to his other ways of communicating experience.

How, according to this model, does the child acquire the concept of reference? Bates et al propose that this is part of a process of gradual differentiation, of language from context, of action from context, and of self from the world around. They perceive the same kind of processes operating in symbolic play development as in language. Instead of distinguishing between 'referential' language and 'performative' language, they see a gradual progress in the use of reference, which affects all the functional categories, and not primarily labels.

* NOTE: C = consonant; V = vowel

A CV word would be [ba] a CVCV word is LI [dndn]

Within language, we found a developmental progression from what we have termed 'non referential' to 'referential' uses of words. The non referential words are not names for actions or entities; rather, they are procedures that are used in restricted contexts that may include particular actions or entities. As such, they are what Piaget has termed 'first verbal schemes' or 'pre concepts' ... a transitional form between sensori-motor activities and true concepts. However, the distinction does not in our view, imply a discontinuous development. In true reference or naming, the vocal gesture is used to anticipate, recognise, and identify, or remember a class of objects or events. This is not a shift from procedure to 'mental object' ... rather, naming is a type of procedure, a different sort of language game than the more narrow and context-bound uses that typify non-referential speech. What happens between 9 and 13 months, is that the rules of the language game change, from a rigidly structured and context-bound use to a more flexible use in which the major invariant across contexts is the involvement of a referent object or event. Volterra et al 1979.

Note that in this model too some kind of internal change must be accounted for in psychological terms.

Once again, as in the development of signalling behaviour, we see the mother constructing meanings for the child - interpreting his points and 'words' as object naming, and drawing him into referential language. The child acquires the form of a word, with specific associations and gradually develops and extends its meaning

Reference as social transaction

Both of the above hypotheses represent naming as a cognitive behaviour, rather than as a social act. For Bruner, the question of how the child arrives at the notion that things have names is something of an irrelevance, since he does not consider that the child has to learn that a given sound, gesture or word, labels something in the environment.

"associative theories of naming or reference presuppose that a sound or gesture emitted in the presence of a referent leads to automatic recognition by the child that the name stands for something at the focus of the child 's attention. That is plainly not so, at least not until quite late. Whatever the reference triangle is ... it is plainly not an isolated bit of mental furniture produced by the linking of a sign, a thought, and a referent. The objective of early reference rather, is to indicate to another, by some reliable means, which, among an alternative set of things or states or actions, is relevant to the child's and mother's shared line of endeavour". (1977).

Bruner places naming firmly in the more general context of reference - a procedure for discriminating something and indicating it to someone, which involves not simply naming, but indication and deixis. He concentrates on the procedural routines in which labelling is embedded, rather than on the acquisition of associations. His work can provide no answers as to how the child discovers the underlying principle. However, Bruner and his associates demonstrate effectively that early naming is not a matter of isolated, unidirectional stimulus-response chains, but takes place in the context of structured dialogue.

Labelling is taught to the child usually in a situation where he cannot manipulate the referent directly, and thus be distracted by it. Mother and child already have experience of a wide variety of exchanges in which objects serve as topics (notably, give and take). The single mother-child interaction observed in detail by Ninio & Bruner (1978) involved looking at pictures. The structure was highly formalised, with the mother following a three step routine which involved calling attention to the picture (look!); question (what's this?); and label (either by herself, or the child). The mother regulated her responses according to her knowledge of the child - she was more likely to ask 'what's this?' if the child knew the name. The child was more likely to label if the mother asked him the name, or if he himself initiated the exchange. Negative feedback from the mother decreased the likelihood that he would repeat an incorrect label, and also seemed to increase the probability that he would use it correctly at another point. Imitation, as such, seemed to be less important for the child's acquisition of labels than the actual structure of this familiar dialogue; it was one of the processes involved, rather than the main channel.

There is substantial agreement about the social contexts which give rise to referential language. Similar patterns of adult child interaction centred around the teaching of names have been identified by Lock 1980; McShane 1980; Murphy 1978. It is less easy to determine how a child develops labels in the absence of such overtly didactic frameworks. A study by Masur (1981) found evidence of a direct relationship between mother's labelling responses to children's point, and the extent of the children's vocabulary at a later stage (see RIS II, 4, Pointing). It is clear that the strategies parents use have specific effects on their children's language development, but the extent and duration of these effects remains unclear.

Bruner's account, then, identifies the facilitative conditions for the acquisition of labels, but does not contribute to our understanding of the internal mechanism, the psychology, of naming.

What his model does suggest is that the act of naming an object may have a different significance for the adult, who sees it as a goal, or task to teach, and the child. If we agree with Bates that early labels are performatives in the same sense as other early 'words', they will express the child's involvement in a shared activity. Although potentially they are sources of objective reference, for the child they are no different to his other ways of communicating experience. Grieve & Hoogenraad (1979) express this well:

A mother shows her child a bird mobile, says Look at the birdie and in prolonging the first vowel of birdie and giving it tonic stress, she makes it part of the ritual. When the child later uses the word birdie or some variant of it, it seems reasonable to suppose that his intention is not referential - 'there is the birdie' or informative - 'that is a birdie' or whatever; he may simply intend to draw his mother into the ritual and to share again the common interest. Thus for the child his earliest words may be a means of sharing experience rather than a means for talking about experience. Grieve & Hoogenraad (1979).

This brings us back to consideration of naming in relation to the wider context of reference which also includes indication and deixis.

Indicating

Shared attention between mother and child allows the development of strategies for indicating objects and events that the child chooses to name. The patterns of eye contact and gestural indication described in the previous Issue are seen as procedures which allow the child to effectively single out a referent with increasing control; and for mother and child to 'cross-check' with one another that they are on the same wavelength. Bates and her co-workers have also identified the attentional capacity in babies as the likely precursor of indicating skills. Early pointing was accompanied by a 'fixed listening postures which grew out of an earlier orienting response to novel stimuli at 4½ months - and these responses are described as "the very first acts of reference".

Deixis

The term linguistic deixis refers to the mapping through language, of what Shields calls the shared field of reference for speaker and listener (see discussion RIS II, 2, p.15). The most obvious deictic markers we have identified are those which indicate social roles, spatial locations, and temporal locations. They include pronouns like - I, You, He, They, This, That; prepositions like - In, On, Behind; adverbs like - Here, There, Today, Yesterday, Soon, Late. It seems likely that the concepts which they express develop out of the child's growing understanding of himself and his relationship to the world around him.

Prelinguistic deixis seems to grow out of the kinds of attentional focus described in the section on indicating as the infant gradually makes the distinction between himself and others, himself and the space around him, himself in the present and himself in the past and in the future. These distinctions are not fully realised by the child during the first year, but continue to develop as he moves away from an egocentric view of himself and his world in the preschool years.

The first clear acts of deixis seem to be spatial, and are typically points which may be accompanied by "there" or "that" (Clark 1978; Bates 1976). Understanding of reciprocal roles is an essential pre-requisite to the acquisition of person deixis. Bruner points out that this brings the notion of pragmatics - the relation of language to those who speak it - to the heart of the problem of reference. Bruner describes some early examples of 'behavioural deixis' - reversal of roles in peek-a-too games; in give and take routines 'often marked by distinctive vocalisations for ... the giving and the receipt of an object' and in gaze following.

Although a fair amount of work is available on the acquisition of linguistic deixis by young children (e.g. Clark 1978; Antinucci & Parisi 1973), the steps from behavioural to linguistic deixis have not been systematically recorded.

Summary

The acquisition of reference can be viewed as both a social, and a cognitive process. Its social origins derive very clearly from early communication patterns between adults and babies. Cognitively, there is not yet agreement as to whether the ability to name an object is part of a more general ability to handle and express referential relationships, or whether it is a specific new skill which develops relatively suddenly.

PREDICATION

Bruner has observed how children come to mark topic and comment in the prelinguistic stage. Firstly, in the management of gaze direction, the topic may be identified as the object of joint attention, and the comment as the intersubjective 'sharing' of eye contact that can be observed between infants and mothers from the time at which games with objects develop (Trevarthen & Hubley 1978). Bruner has identified the emergence of a 'comment' type vocalisation (the proclamative) used as the baby initiates or completes an action, and later as he performs an action, such as looking at his mother and vocalising as he picks up a brick and adds it to a pile (Bruner 1977, 1978).

Bates (1976) in her discussion of the development of topic/comment distinctions suggests that the ability to presuppose develops in parallel with the child's attention to novel events

"if, as our evidence indicates, the first speech acts build on the child's solitary attentional responses, then he will naturally encode what has drawn his attention. Informative means that aspect of a situation undergoing greatest change. In a stable situation, figure is defined as that aspect of a configuration which is most likely to draw attention. The orienting system is built to discern the changing from the stable, and figure-ground mechanisms enable the organism to further isolate and analyse the novel event. Hence the child who has learned to encode will encode the most informative elements from a structured situation precisely because these are the elements which keep his attention. Considered in this light, it is no longer surprising that children make appropriate presuppositions from the beginning of speech. It would, in fact, be far more difficult to do the opposite, encoding what is taken for granted or presupposed" Bates (1976).

For Bates, then, distinctions between topic and comment develop from what she has termed the first acts of reference - the patterns of child's orientation to novel stimuli. Because of the child's limited processing capacity in the early stages of language development, he is likely to use the situation, or context, as an implicit topic, and encode the comment.

For example, S, watching on the television a sequence where a large dog gambols about and then knocks a man over, comments [dau] - down rather than man or dog! presumably because the man and dog are the 'given' element which can be left unsaid and are implicit.

The attention patterns underlying the presupposing of topics and the encoding of comments are socially constructed, not purely cognitive in origin. Mother and child together, as we have seen, develop joint attention, and shared meanings, and their early conversations reflect these assumptions. The routines developed during the prelinguistic stage between adults and children - meal times, nappy changing, picture book sessions and so on - can function as implicit topics, or frames for the child's comments. However, their predictable nature allows the child to learn how to handle the expression of topics in situations where he is likely to be understood (Foster 1982).

There is a certain amount of evidence that children are likely to encode informative, or dynamic aspects of a situation at the one word stage (Greenfield & Smith 1976), as S did (above). However, it is often difficult to establish what in any situation is likely to function as topic or comment (Bates 1976), and Foster's work indicates that children are capable of handling topics as well as comments.

Foster (1979, 1982) has explored the development of the ability to initiate topics which she defines as the object of shared concern. The focus of her study was the child's successful attempts to change the object of shared attention in interactions with the mothers. She observed 5 children, ranging from 0.1 - 1.11 years at the beginning of the study, to 0.7 - 2.6 years at the end; and collected two one-hour samples from each child at 6 monthly intervals. Her study was not therefore longitudinal, and had to sacrifice continuity of development; however, she was able to identify some common features of development.

She separates topics into SELF (where the topic is the speaker) and ENVIRONMENTAL (where attention is directed away from the speaker to something in the environment) and notes that particular behaviours were associated with the two different types. At first SELF topics accounted for 50% of the data. The youngest children (0.1 month, 0.5 month) attracted attention to themselves by vocalising and gazing at the mother. Attracting attention to self seems to be intentional from an early age - at least 5 months. The proportion of SELF topics dropped dramatically, accounting for only 2% at 2.6 years. However, vocalising continued to function purely to attract attention until the children began to verbalise.

The proportion of ENVIRONMENTAL topics rose steadily. The principal means of identifying these topics were through actions and gestures, the earliest being - reaching - and gaze. An example illustrates how children may change the topic of shared attention in this way.

0.7 Lauren

Mealtime, mother gazing at child. Child gazing at the spoon in mother's hand. Mother has just fed L a spoonful of food (the implicit topic, or focus of shared attention here is the meal). L gazes camera then : both hands manipulate bib. Then : gaze bib + lifts bib up. Then gaze at mother + continues to lift bib. Then : bib down, M 'tut d'you think that's funny huh!?

(From Foster 1979)

(L has now shifted the focus of attention to her game with the bib).

Foster notes that it is more difficult to determine the intentionality or otherwise of environmental topics because if the mother is alert, fortuitous gaze or action by the child can result in a change of topic by the mother in response to that behaviour. She suggests that criteria such as those outlined in RIS II, 2, page 42, be employed.

The children became more proficient at initiating topics as their gaze behaviour matured, and as they began to use communicative gestures such as giving, showing and pointing (which did not emerge till 15m in this study, possibly due to the experimental design).

Foster suggests that in looking at the development of communicative behaviour, it is important to take into account the topic - what the child is communicating about - since this may affect the kind of strategy he employs. In the earliest stages, vocalising functions to gain attention to the self, whereas action and gestures are usually to objects or events in the environment. There is insufficient evidence at present from Foster's data to account for how the vocal channel becomes 'verbal' and used to identify topics.

Summary

The roots of linguistic predication seem to lie in the establishment of joint attention, and the gradual distancing of self from objects and people, which are also implicated in the development of reference. Predication, like reference, is both a cognitive and a social act. The shared routines of the familiar environment become the topics of the conversations between mother and child, and what is expressed tends to be the informative, dynamic elements to which they attend. But although topics are not directly expressed, they are 'marked' by the child from an early age, and he can introduce, shift, and terminate topics through gaze, gesture and vocalisation, by the time he comes to use words.

GRAMMAR

For Bruner, the grammatical rules of language have their precursors in the rules of joint action and dialogue. The rules for producing a sentence cannot be divorced from the structure of the discourse in which the sentence appears. A speaker using language is not an isolated individual generating a sequence of egocentric ideas, but a member of society using language to communicate about himself and the world. Grammar involves the concept of relatedness (as we saw in the previous discussion of deixis). Hence grammar is not simply a way of identifying the rules which characterise a child's output, but the rules which specify his relation to the object, people and events of his world. Bruner sees this development as a gradual one, as child and mother refine their communicative routines.

The children in his longitudinal sample seemed to 'mark' certain points in interactions, by changes in pitch pattern, from an early age. Babies of four months or so differentiated two distinct nodes of interacting in their cries - demand and pleasure. Increasingly, the kinds of distinctions which they mark in their vocalising are refined. One child, at 6 months, used a different pitch range for vocalisations accompanying objects in hand, to interacting with his mother; and the same child used a sharper onset of voicing when reaching for objects, than for taking ones near to hand (Bruner 1978). Bruner identifies several 'nodes' of interaction, and gives examples of the kinds of marking which accompanies them -demand, request, exchange, and by 9 months or so, the reciprocal node, where child and mother centre on a task, such as a puzzle, take up roles of giver, receiver, actor, onlooker, and are able to shift between roles as the task requires. The child seems sensitive to the kinds of distinctions which will later be expressed in verb tense; initiation, completion and resumption of actions (Bruner 1981).

Bruner's claim is that the roots of grammar lie in such structured and rule governed interactions.

“the task and its constituent acts and objects become the objects of joint attention and anticipation. Increasingly, communication by gesture and by vocalisation becomes slotted into these task frames or action formats. It is in this context that the child is learning what might be properly characterised as the prelinguistic prototype of case grammar; who is the Agent, what is the Action, the Object, the Recipient of Action, and how these may be exchanged and substituted, as well as sate rudiments of the case forms that will later be Possession and Location”.

How far are Bruner's ideas on the sources of grammar substantiated by studies of early language? There seems to be general assent that the earliest word combinations are best described in terms of their semantic relationships, rather than the syntactic terms of the adult language (RIS II, 2, p.13).

Some researchers go further and assert that even at the stage of single words, children are expressing underlying meanings such as Agent, Action, Location (Greenfield & Smith 1976). There is also agreement, in Wells' words, that "the conceptually organised representation of experience that is built up in the prelinguistic period is a pre-requisite basis for the acquisition of semantic structures and of their lexico-grammatical expression". However, it also seems clear that some kind of specifically linguistic factor is necessary to account for the development of syntax, and the acquisition of the formal grammatical system (Wells 1981).

Although Bruner has demonstrated that semantic roles can be inferred from the structure of exchanges between infants and adults, this is a long way from proving that the child actually perceives and encodes these distinctions, and we need evidence from longitudinal studies of continuity between the kind of marking that he describes, and the way in which words are first used.

Summary - The Social Origins of Language

A lot of inference is involved in the parallels drawn by Bruner between prelinguistic acts of communication and the organisation of adult language. However, the very fact that Bruner has opened up the possibility of applying similar models of analysis in both spheres means that it should be possible to set up and test hypotheses which will help to determine the relationships involved.

His work suggests that the organisation of communication in infancy acts as the 'carrier wave' for language. The contexts of linguistic, and prelinguistic communication are the same, and the structures of interaction developed in infancy lay the foundations of language development. However, it is clear that these contexts are not in themselves sufficient to ensure the development of language (Wells 1981). Many groups of people, including those with mental handicap, and severely institutionalised children, develop a reasonable level of communicative signalling, but fail to progress linguistically (Bates et al 1979; Sugarman-Bell 1978). Let us turn from consideration of continuity between contexts of communication and language, and look at some of the work which has sought to identify the cognitive prerequisites for language development.

THE COGNITIVE BASIS OF REFERENTIAL LANGUAGE

There is a fairly clear consensus that the main cognitive skill associated with the ability to communicate intentionally is a grasp of means-end relationships. However, attempts to investigate the relationship between cognition and the use of referential language have not been so successful. The most significant amount of research has been directed to the object permanence subscale (Uzgiris & Hunt 1975).

Object Permanence

There has been a general assumption that the onset of referential language should be associated with Stage VI Object Permanence cognition, on the theoretical grounds that being able to construct a mental image of an absent object should be related to the ability to name it. On the whole, no such consistent relationship has been demonstrated (see review by Bowerman 1978), although referential language does develop alongside Stage VI of Object Permanence skills (Bates et al 1975; Corrigan 1976). Several reasons underlie this failure:

1. Stage VI Object Permanence is not a single behaviour, but consists of a scale of several ordinal behaviours reflecting a child's increasing ability to handle mental representations of an absent object. Children can take 6 months or so to pass through these stages. Hence it is important not to talk in global terms of associations between Stage VI Object Permanence and the onset of referential language, but to look for specific associations (Corrigan 1978). Corrigan's work (on only 3 children) suggests that the underlying symbolic capacity of Stage VI provides a spurt to vocabulary growth at the beginning, and at the end of the stage.
2. As Bates, among others, point out, there is no a priori reason for assuming that having an image of an absent object is the precursor to the ability to name an object which is present. Object recognition, as opposed to recall, does seem to be associated with object naming (Meltzoff & Moore 1977). However, the ability to recognise an object over time or an event is a Stage IV phenomenon (Bonvillian 1983) and it is extremely difficult to reliably demonstrate causal relationships through correlations, which develop over time (Bates et al 1979).
3. Whether or not associations are found between Object Permanence and language development depends not only on methods of analysis and data collection, and the particular subscales used, but also on the domain of language under investigation. Huttenlocher (1974) found that children comprehended many object names before they could produce them and studies to date have focused on the relationship of Object Permanence and expressive, not receptive language.

As far as expressive language itself is concerned, it appears that relationships may be stronger between Object Permanence and certain types of words than others. Relational words - such as more, all gone, up, down, here, there, seem to develop only during Stage VI Object Permanence and to reflect developing sensori-motor knowledge relating to presence and absence of objects, action, causality, and spatial locations (McCune-Nicolich 1981; Corrigan 1976).

In summary, it seems likely that the ability to recognise objects, rather than recall, is associated with the ability to name objects which are present. No studies have yet investigated the connection between recall of absent objects, and the ability to name them in their absence, but the association between Stage VI Object Permanence and the onset of relational words suggests this could be a fruitful direction. In general terms, Object Permanence is a poor predictor of language at the time when a child is beginning to use words, and does not seem to be implicated at all in the development of communication skills (Bates et al 1979).

Play Measures

Bates et al (1979) investigated correlations between communicative and cognitive development from 9-13 months. Both symbolic and combinatorial play (i.e. combining one object with another as in stacking), were good predictors of both language and communication skills. However, the strengths of association depended partly on the method of assessment (maternal interview or observation), partly on the time of assessment (relationships were stronger at 13 months than 9 months), and partly on the language domain. Thus, whereas combinatorial play (defined by Bates as a type of tool use) predicted both comprehension and production, symbolic play (defined as a form of social imitation) was more related to production. Very strong overlaps were found between the kinds of gestures used in symbolic play and early referential words.

Imitation

Imitation was correlated with production, but not comprehension between 9-13 months.

On their follow-up study at 18 months, however, combinatorial play was no longer related to language development, whereas the association with symbolic play had strengthened.

When they investigated the predictive value of measures of cognition and communication, all the cognitive measures (including symbolic play) failed to predict communication skills at 18 months. However, measures of communicative ability - gestural signaling and performative words - did predict later levels of language, play and gesture. It is suggested that language and action remain closely linked between 9-18 months, but that the relationships change somewhat, with vocal language increasingly influencing the content and frequency of symbolic play.

Summary

Summarising the results of their correlational findings, Bates et al conclude that for each of the cognitive measures investigated, correlations with language and communication occur in different temporal patterns. This suggests a shifting pattern of specific associations which vary over time, rather than a unified one-to-one correspondence between behaviour in one domain and another.

Language and communication were found to be interdependent, with the relationship increasing over time. Whereas the “gestural complex” which subsumes communicative signaling seems to involve use of conventional signals with communicative intent, and possibly some kind of external reference, the language complex seemed to be related in addition to an underlying ability to manipulate symbols, and the establishment of signal/symbol-referent relationships. In an extended theoretical discussion, Bates argues that tool use, causality and imitation (including symbolic play schemes) which are important to communicative development, are also related to symbolic development. Her thesis supports a view of continuity between communication and language development, whilst allowing that an extra ability, manipulation of symbols, which develops near the end of the sensori-motor period, is likely to underlie the development of language.

Part of the difficulty in attempting to determine the relationships between cognition, language, and communication has been caused by the problems in determining the onset of referential language, which has been set variously at three points:

1. 9-10 months when children first produce conventional sounds and show clear comprehension of at least a few words and phrases
2. 12-13 months, when most children produce sound sequences that seem to function like names from an adult point of view
3. 16-18 months, when there is a sudden surge in vocabulary and an increased use of single words to convey combinatorial or sentential meanings (Snyder et al 1981).

If, as seems increasingly likely, the one word stage represents a transitional period in the acquisition and use of linguistic symbols, rather than the achievement of language in itself, then researchers will have to look to associations between cognition and communication during the second year in order to determine what skills are particular to language.

HOW SIGNALS BECOME WORDS - THE TRANSFORMATION PROCESS

To recapitulate, an essential continuity has been proposed between acts of communication and acts of language, on the social level. Cognitively, children become more capable of generalising their behaviour across a range of contexts, and this leads them towards abstraction. The ability to handle symbols seems to be critical for the development of language - but not communication.

Linguistic communication is distinguished from prelinguistic communication by the capacity to make reference to objects and events at the same time as expressing the involvement of the self in communication, which is characteristic of the communicative signal. A prelinguistic child points and says [da] meaning “look at that thing” or reaches and says [mama] meaning “I want that”. The linguistic child points and says [dada] meaning “look at that duck!” or reaches and says [bottle] meaning “I want that bottle!”.

This is the theory - but what actually happens to the sounds and gestures which the child is producing as he moves towards language. Do his signals turn into words? or are they dropped and replaced by words coming from a different source, such as imitations of adult models?

Undoubtedly many of these baby "words" are dropped, but it is interesting to see what may happen to those which remain.

Changes in Form and Function

The process whereby signals are transformed into words has been studied for one child by Carter (1978, 1979). Although this is a single case study, whose findings cannot as yet be generalised, the detail of her observations provides evidence of just how the shift takes place from signals expressing pragmatic intention to words with pragmatic, semantic, and finally syntactic force. In particular, the interplay she notes between the form (phonology) of an utterance, and its function (pragmatic/semantic) is illuminating. From the work on development of referential language, we should expect to see words beginning as pure performative signals, with object naming occurring first in a performative frame. Gradual decontextualisation of the signal should lead to its developing semantic and ultimately syntactic value. From the work of McShane & Lock, too, we might anticipate a sudden grasp of the principle of naming during the second year, evidenced by vocabulary growth, and increase in naming activities. This progress is exactly what Carter has documented:

Carter observed one child during 10 one hour sessions, at approximately monthly intervals, over the course of a year - from 12 - 24 months. In her findings, she traces the emergence of adult word types from their origins in the prelinguistic stage. From her initial observations, at 12 months, she identified 8 classes of vocal signals (which she terms sensori-motor morphemes) where a sound was consistently used as a pragmatic signal, and which in many cases was paired with a gesture:

SYSTEM OF INTENTIONAL COMMUNICATION David 12 months

David consistently paired sounds and gestures to express particular functions, and achieve particular goals.

<u>FUNCTION</u>	<u>GESTURE</u>	<u>SOUND</u>	<u>GOAL</u>
Request object (RO)	Reach	/m/ initial	Get help to obtain an object
Attention to object (AO)	Point	/d/ or	Draw attention to object
Dislike (DISL)	Hold out	/l/ initial	Get help to change situation
	-	nasal sounds, especially	
Request transfer (RT)	Reach to	/n/ initial	Obtain an object from, or give to, a person
		/h/ initial	

Examples abstracted, and simplified, from Carter 1978.

These categories are essentially pragmatic; their form and significance being determined by forces other than the conventional language input, although adult modes for some of them can be hypothesised. /l/ and /d/ sounds for example, may derive from look and that, but /m/ seems to come from lip smacking in anticipation of feeding. Interestingly, Carter found that when she reviewed earlier diary studies, from a variety of cultures, the same sounds often cropped up with similar associations.

At first, these units expressed pragmatic meanings only, and were used to achieve particular goals in the child's social interactions. However, over the course of the year, they became more phonetically refined, and acquired specific semantic associations - though at different times for different sounds. These could not be identified consistently until the end of the second year, but gradually [la] evolved into look and [dæ] into a number of different deictics - these; that; this; there; the. By the time of the last observation, in fact, some of these AO /d/ variants were functioning syntactically in multiple word utterances.

E.g.:

David, struggling to wrest a bucket from a peer, yells loudly

"gimme [dækt] gimme [dækt] gimme [dæhæhæhæ] " (crying)

[dæ] has become that

David sees a peer across the room playing with a toy, and says

"what Dot doin [dæer] "

[dæ] has become there

David shows a key to his mother; "here [diy] key; here [diy] key; here [diy] key; moy "

[dæ] has become the

Examples from Carter's last observations in her 1978 paper.

Gradually the child's protowords took on different levels of meaning - he moved from pragmatic, to pragmatic/ semantic to pragmatic/ semantic/ syntactic structures and the shift in meaning interacted with shifts in sound structure towards the adult model, which both stabilised production of a sound, and also increased the number of consonants used, and hence the potential vocabulary items.

At the same time as /l/ and /d/ evolved into their final forms as function words, another strand of development resulted in the transformation of certain sounds into object names. A number of David's utterances which were originally used for Attention shifted away from their functions as pragmatic directives, into labelling contexts.

For example:

David used [la] or [lʊ] commonly to direct attention, from the age of 1 year on. At about 1.4 he began to use // + vowel, commonly [la] or [læ] to apparently name objects. In one graphic instance he uses a sequence of these morphemes, and the label [læ] or [gæ] for his cup, "hinting at an either confused, or deliberate cognitive interconnection between these utterance types".

He produces a gesture intermediate between point and reach toward the cup of juice on the table, saying:

[la · glæ · la · glæ glæ (repeated 3 times) a · da · la ·
mæ · glæ · læ lʊ · læ læ]

This stage of development, when the form used is that of the vocal signal but the application seems to be to label, is termed by Carter, 'pseudo-naming'.

Carter has identified here an intermediate stage of referential development, in which the child moves from a general, indicating action, - point, show, and vocalise - to the level of particularised referral, where the sound is taking on the characteristics of a true word. She places the origins of naming firmly in the Attention to Object schema, as do Dore et al (1976). The gestures, whilst originally tightly 'bound' to the sound, gradually disappeared over the course of the year, as their deictic function (to indicate the object of desire or attention) was taken over by the words look; that, or the object names. Only when naming was well established in the AO context, was it subsequently used to request.

Most of David's protowords in fact evolved into function, rather than content words (such as nouns). The /m/ initial sound used to request objects became more, mine, and the /h/ initial used in exchange contexts changed to here, where and have. The object names, which entered David's vocabulary shortly after the 'pseudo-naming' phase, as direct imitations of the adult model, were apparently quite distinct phonologically from the earlier, sensori-motor forms. Carter is adamant that the relationship between the earliest manifestations of words, and their 'final' form at 2 years was not direct - these were not 'words in disguise'. Rather, they evolved very gradually, on the basis of their phonetic similarity to 'target' words and the semantic relationships with which they could correspond. Carter suggests that phonetic constraints play a significant role in this transformation; the sounds that the child 'selects' from his babble, and from adult models, are likely to affect the words that develop from them.

Carter has identified one pattern of development in which the relationship between a communicative schema and referential language can be clarified. In David's case, most of his early performative words became the function words of his subsequent early sentences but some originating primarily in the Attention to Object context became object names. Just after a stage of 'pseudo-naming' (which may of course only pertain to this child in this way), during which the words used were partly pragmatic, partly semantic in function, he started to name objects distinctly, using some of the sounds already in his repertoire, and some direct imitations of adult models. The act of naming, for David, seems to derive directly from the earlier action schema of pointing to indicate an object, and this illustrates how naming is embedded in reference, as Bruner contends. The process was gradual, as the performative words were generalised across a range of context, acquired semantic significance, and diversified in form, under the influence of the adult models which the child selected as his target words. There is also support in Carter's data for the possibility of a specific naming insight, since David began to name objects consistently well after he developed performative words, and many of the object names were different in form.

The Relationship between Words and Gestures in the Transitional Period

The close association between vocal signals and gestures in the preverbal stage continues as children begin to develop language. When Volterra and her colleagues came to look at what children gestured and talked about, they found that the content of the two vocabularies overlapped. Children talk about and gesture about, the same things. Just as children come to generalise words outside specific contexts to stand for objects, events and experience, so also some children will use gestures in a referential sense, to represent stable and consistent concepts. For example, gesturing DRINK as a request for a drink, or TELEPHONE (hand to ear) to indicate that someone is on the telephone in another room.

The extent to which children make use of symbolic gestures such as these to communicate undoubtedly varies according to personality, cultural influences, verbal/gestural ability, exposure to sign language, and so on. However, the information from Volterra and Bates' longitudinal study of a large group of children suggests that gesture and vocal language continue to develop in parallel around the time that first words are developing. The vocal mode in hearing children then takes over, and gradually the ties between gesture and speech loosen. Children discover that it is not necessary to point and name in order to indicate or request; the name on its own will do - especially if your hands are full of toys at the time (Carter 1978; Lock 1980). Deaf children, especially if they are exposed to sign language, are likely to use gesture as the dominant modality. Carpenter et al also found a parallel development in gesture and speech, with gesture declining between 12 and 15 months (1983).

From about 12 months on, children will begin to combine sequences of gestures, or gestures and words. Volterra's data (on only 4 children so far) suggests that the first combinations involve so-called deictic (indicating) gestures, such as pointing, reaching, giving and showing. These are combined either with one another, or with referential, symbolic, words or gestures, as these examples illustrate.

S to request a drink says cup and points simultaneously to the kitchen
(referential word + deictic gesture)

S requesting a biscuit, opens and shuts his mouth in an eating movement, and then points at the biscuit
(referential gesture (EAT) + deictic gesture)

S requesting that his mother bring him a toy, points to the toy and then points to the space next to him
(deictic gesture + deictic gesture)

Later some children may combine referential words and referential gestures, as did Matthew, a hearing child with delayed expressive language, and Luca, whose hearing and language were both normal.

Matthew comes in the room holding a small spiderman figure ... says "man" and gestures BROKEN (corresponds to Makaton sign)

Luca gestures BISCUIT, and says "Good" (Volterra 1981).

Interestingly, none of the 3 hearing children in Volterra's sample combined two referential gestures, though they did go on to combine words. The deaf child of deaf parents combined referential gestures (in effect signs) with one another, and words.

Combining gestures and words looks like an important first step towards building sentences, a skill which develops at a much later stage. It seems that children begin by using deictic gestures in combination with each other and with words or referential gestures. Later they go on to use two symbols - a referential gesture and a referential word, or two words, or two referential gestures.

SUMMARY - THE TRANSITION TO LANGUAGE

There seems then to be a very real transition to language. Children do not suddenly 'jump' from prelinguistic to linguistic communication. Rather, they go through a period of developing symbols out of signals. If we accept that linguistic and cognitive development are related, it should not surprise us that the process is gradual in communication, as well as in thought.

The earliest words and gestures used communicatively are performative signals, associated with very particular contexts relating to the achievement of mainly social goals - like wanting, giving, sharing attention. These arise from the social routines established in babyhood which have highly familiar, predictable, verbal contexts. At this stage, communication is still essentially prelinguistic. The repetitive, ritualised nature of mother's speech accompanying routines, helps to direct the child towards the imitation of familiar words (Ferrier 1978).

For example, in learning to join in with nursery rhymes, S learnt down first in context of a ring-o-roses game. His first use of again was as a repetition of his mother's "shall I do it again?" in a tickling game, and his first use of oh dear! (with appropriate intonation!) again imitated his mother's response to his own frequent tumbles.

This kind of process leads to the acquisition of words in performative frames, which sooner or later are generalised to other situations. The form of these early words seems for most children to derive from babbled sounds, often in imitation of an adult word, but many original to the child. Their use relates to an underlying ability to use familiar routines as intermediary behaviours to attain goals. Gestures develop out of actions directed to objects and people. At this stage gestures and words are equivalent to one another, and express the same kinds of content.

To develop referential language the child must move out of the realm of exclusive, restricted meanings, and enter the world of shared meanings, where words denote concepts independently of the contexts in which they occur. This involves a progressive ability to separate a signal from its immediate context, which is found not only in language, but in the development of thought and symbolic play, and seems to be a function of the capacity to represent the world symbolically. The signal becomes 'decontextualised' - used to symbolise a referent across a variety of different contexts.

Children come to use all their vocabulary in this kind of symbolic way - Carter's David developed the words "look", "there"; G learned to use "hello" not just on the telephone, but as a greeting. The most striking development in referential language is however, when children begin to name objects, apparently for the sake of naming. Bruner's work allows us to see this, not as an isolated skill, but as part and parcel of a social act of making reference which has its origins in the interactions between mothers and young babies. Bates and her colleagues see naming also as a part of the process from context bound to referential thought and language. McShane and Lock, however, propose that there is sudden cognitive insight into the naming process. Behavioural evidence can be found in support of both theories. It is worth noting that Bates' sample only went up to age 13 months, whereas the children who are credited with sudden generalising of the naming principle are slightly older (Snyder et al 1981). It may be that the ability to generalise performative words is in some sense a precursor of the ability to name - or that both processes relate to underlying cognitive development. At some point during the second year, many children seem to perceive relatively suddenly that words have particular associations, and this insight fuels their ability to extend and generalise vocabulary across a variety of contexts. We still know little about what this 'naming insight' may involve.

There is some evidence that the use of words as labels derives principally from preverbal acts of indication - drawing attention to the object for the sake of doing so, rather than from preverbal requests (Carter 1978; Lock 1980; Bates 1976). However, recall that G seemed to use words from the start to request as well as to indicate - clearly more research is needed to identify the contexts from which naming behaviour arises. Naming objects may be facilitated by specific games directed to the teaching of associations.

Once the child can use one word in different contexts, he has opened the door into the adult world of language, where one word can convey different messages, depending on the tone of voice used, and the context in which it occurs. Instead of cat, say, being used purely as a label, it can mean different things:

I want to see the cat
The cat has hurt me
The cat uses that dish

The child's task from now on is to learn to 'disambiguate' his one word messages by expanding them into sentences.

There is, then, essentially continuity between communication and language development. However, using language seems to involve some extra capacity, probably symbolic in nature. Furthermore, social contexts which are adequate for the development of communication skills do not necessarily promote language development (Sugarman-Bell 1978). It seems likely that the opportunity for engaging in individualised dialogues with adults, to help construct the meanings of utterances and events, are vital in acquiring language. Plainly more research is indicated on the cognitive and social capacities which are particularly associated with language development.

A powerful source of motivation towards acquiring new vocabulary and new ways of using words, which has received little attention to date, is the adult's failure to attend or understand (Ryan 1974; Atkinson 1979). Of course adults must strike a balance - total incomprehension is not a stimulant to language growth; but neither, surely, is total understanding. It seems likely that children's attempts at repetition, or at reworking what they have to say in order to make an adult understand, may be one of the ways in which expressive language gains in complexity or explicitness (Scollon 1979).

In the following sections, various aspects of development which span the period from signals to symbols will be separately considered. These include:

- (1) The development of word meanings
- (2) Comprehension in the transitional period
- (3) Maternal language style
- (4) First words in the context of dialogue
- (5) Individual differences in language acquisition

DEVELOPING WORD MEANINGS

There is a large body of research dealing with the kinds of strategies children seem to use in generalising object names and thus acquiring semantic force (Bowerman 1978; Volterra et al 1979). The debate has revolved around three possible strategies.

1. Generalising on the basis of perceptual features such as shape, size, movement (Clark 1973). Thus the word "ball" could be applied sequentially to -ball, orange, moon, coin, circular pendant - presumably on the basis of "roundness". Production 'error' (over and undergeneralising) seem to be based on perceptual features (Bowerman 1978); so this kind of association does seem to be one of the strategies employed in learning how to attach names to concepts.
2. Selecting items on the basis of functional salience. Nelson 1977 proposes that the functional characteristics of objects and events - how they act, or are acted upon by the child - are likely to motivate the child's choice of items to name. Thus things that are dynamic - bottles that can be drunk, balls that roll, doors that can be opened and shut, people and animals and vehicles that makes noises, and move - are more likely to be named than static unchanging aspects of the world around the child - walls, sky, earth, and so on. In Volterra's words "functional features (e.g. "rollability") direct the child's attention to interesting objects and events whose names should definitely be learned. Perceptual features (e.g. roundness) are the stable, dependable features that form the semantic core of word meanings once the words are acquired.

3. Generalising on the basis of 'family resemblance'. Rosch (1976) and Bowerman (1976), propose that the process whereby children use perceptual and functional features to extend the meanings of words, involves the child identifying a 'prototype' - the 'best example' of a category and then extending category membership on the basis of family resemblance. Thus for example S learns [əʔ] for the family cat, and then extends the term to other furry fourlegged animals in a way that Volterra paraphrases as "I don't know what this is, but it's a sort of cat". The first referent for 'cat' is the prototype, then used as a yardstick to determine whether or not other animals are cats. S has selected one example as the criterion 'cat-ness'. The kind of explanation fits very well with what we know of children's behaviour. Often the classes of referent that the child extends a name to have very little in common with one another - but do relate in some way to the 'prototype'.

Thus Bowerman's daughter used the term "kick" for kicking with the foot. She then extended it to:

- (a) a moth fluttering
- (b) a car hitting a ball and making it roll
- (c) bumping her chest against an object

There are certain motivated connections between these examples and the prototype, such as waving a body part (a), propelling an object (b) and sudden sharp contact (b + c). Some of these will be particular to individual children, others will be common to many. The individualised connections are the source of surprising and novel uses of words. The prototype theory helps to explain why not all referents which share perceptual features are categorised appropriately by children.

In summary then, work on the development of word meanings suggest that:

1. Functional relevance helps to determine what children will choose to name - things that are important to them, and which have dynamic, attention-getting properties.
2. Children seem to select a 'best' or prototypical example - which may be the first referent for a word, or the word most used for the referent by parents - and then use it as the criterion by which to judge other potential examples.
3. Perceptual similarity provides a basis for determining how similar new examples are to the criterion.

LANGUAGE COMPREHENSION IN THE TRANSITIONAL PERIOD

The study of language comprehension has concentrated mainly on children from 2 years upwards, and has focused on three areas; the relationship between comprehension and production (Bloom 1974; Ingram 1974); the acquisition of word meanings, and the development of an understanding of grammatical rules (see Bridges et al 1981, for their review). Much less information is available on the earliest stages of language comprehension, but some general conclusions can be drawn regarding the relationship between comprehension and production.

Comprehension Precedes Production

Between the ages of 10 and 20 months, children can comprehend a wider range of words than they can produce (Huttenlocher 1974; Benedict 1979). Benedict also found that comprehension items were acquired at a faster rate than production items.

Words Comprehended Are Not Necessarily The Same As Those Produced

The fact that children seem to have different vocabularies for production and comprehension has been noted from the earliest diary studies (Bloom 1974), and is a consistent feature of more systematic investigations of comprehension (Huttenlocher 1974; Benedict 1979; Snyder et al 1981). As far as the composition of vocabulary is concerned, names of objects and action words predominate in both comprehension and production. However, whereas Miller et al (1980) found that children responded to names of people and objects before action words, Benedict found a rather different pattern of development. She investigated comprehension and production in 8 children between the ages of 10-18 months, between 10 and 50 word levels. At the 10 word level children responded more to action words (which included social routines like peek-a-boo, and imperatives such as jump and no!), than to nominals. However, by the 50 word level, the proportions of action words and nominals was equivalent. By contrast, nominals predominated over action words at all levels in the production vocabulary.

The reasons for asymmetry between comprehension and production have not been fully investigated. It may be that, as Huttenlocher suggests, it is more difficult to retrieve words for production than for comprehension, and that the quantitative differences can be accounted for by productive processing constraints alone, in the later stages of language acquisition, the relationship between the two modalities is a lot more complex, with production of certain structures seemingly in advance of comprehension (Clark 1980).

With regard to the qualitative differences, two suggestions are advanced. Huttenlocher proposes that articulation plays a part, in that children will not be able to articulate some of the difficult sound patterns they comprehend. There is evidence that children actively select and avoid in their early construction of phonological systems (Ferguson 1978; Menyuk & Menn 1979); however, we are very far from knowing what the criteria of difficulty would be for any given child. A number of children after all, make attempts at complex adult words - indeed this is a source of amusement in families. Wells (1981) looks to the pragmatic functions of early language for an explanation, and suggests that the differences may lie with a differentiation of roles. The child at first has one repertoire of behaviours as a speaker, and one as a listener. Over the course of his second year, he learns to begin to relate them to each other.

In any event, due note must be taken in evaluating experimental research into comprehension development of methodological variables which affect the conclusions. The number of subjects in the three main studies quoted above is relatively small (Huttenlocher - 4; Benedict - 8; Miller et al - 12 at each age level) and the predictions made need to be tested with a larger sample. Secondly, the way in which testing is done depends on the child making unambiguous responses to clearly perceptible referents, as Wells and

others have pointed out. It is easier to test for responses to names and actions than attributes like hot; pretty, or modifiers like more; hence maybe the preponderance of nominals and action words in the vocabularies. Moreover, researchers may use different categories, and may assign words inappropriately - can No be a genuine example of an action word, as Benedict assumes? Thirdly, different assessment methods yield different results. Volterra et al 1979, using one type of maternal interview, found an overlap between comprehension and production vocabularies. Snyder et al 1981, using a different interview format found asymmetry between comprehension and production which bore out Benedict's findings. A more fundamental critique of the test type of assessment comes from Bridges et al (1981). In the test format, as described above, comprehension inevitably looks like a one-way process, with the child playing the role of a language processor. But this static and mechanical model is a far cry from the reality of everyday communication, where comprehension of a message is the responsibility of the speaker as well as the listener. Comprehension is really a dynamic, two-way process, and the listener plays a very active part. As he listens, the child must 'construct' an interpretation of his mother's words. To do this, he forms expectations of her meaning, using the cues provided - in the physical situation, and by her gestures, facial expression, and tone of voice - and using his internal model of the world, based on his past experience of similar situations. Thus S, at a stage when he had only one or two performative words in his productive vocabulary, overheard his mother, at the end of supper say 'I think it's time for S to have his bath'; and responded by running to the bathroom door. Granted he only needed to attend to the final word - "bath Sam", would probably have elicited the same response but his knowledge of the daily routine undoubtedly assisted in his understanding of the message.

In one of the few attempts to investigate comprehension experimentally, MacNamara (1977) found that both 13 and 17 month old children were heavily dependent on gesture and eye contact for interpreting unfamiliar messages - and that when words and gestures conflicted, children were most likely to rely on the gestures. The older children were more able to attend to visual and verbal cues separately.

Comprehension is a 'multi-cued' process, not just for the developing child, but for the adult (Wells 1981). Our understanding, particularly of words we have not quite grasped the meaning of - or of a foreign language we are learning - may fluctuate according to context. Just so, for the child in the process of acquiring his first language, comprehension is a variable, rather than an 'all or nothing' phenomenon. Children who will respond appropriately to an instruction in one context, may fail to do so in another, and their failure may be due to a number of different reasons.

There is plenty of evidence that children use active strategies to interpret what is said to them, from the ages of about 2 years on (Bridges et al 1981). These change as the child gets older, and becomes more proficient in language, but are still evident in the approaches of school age children to verbal problem-solving tasks. There is no information to date on the strategies which children of a younger age might employ, though it seems safe to assume, with Chapman (1981), that these are related to processing limitations; the child at first only being able to attend to one lexical item at a time. Volterra et al (1979); and Snyder et al (1981) found that the same process of 'decontextualisation' affected words in comprehension as in production. Words which were at first understood only in a restricted context gradually became understood across a variety of contexts.

Some formal language assessments for example, assess language comprehension by 'screening out' contextual clues, and giving increasingly complex verbal instructions such as:
"put the black pigs around the field and put a pink pig next to the house"

However, it is comparatively rare for a child to be faced with such an abstract task, and very far removed from the situation in which he normally communicates. In fact, the extent to which children are able to learn about situational cues to meaning, and use context themselves to express meaning succinctly, is part and parcel of their developing linguistic knowledge, rather than an immature dependence from which they must work free.

The Influence Of Maternal Language Style

Again, most of the numerous studies on the modifications which adults use in talking to children have concentrated on two year olds upwards (see reviews of this extensive literature by Chapman 1981, Cromer 1981; Bridges et al 1981). In general terms it is true to say that adults, and even 3 and 4 year old siblings, tend to simplify their speech, and reduce the length of their sentences, when talking to younger children, but this is by no means universally the case, and it is even less clear precisely what effect these modifications have on the development of language. Chapman suggests that in the 1-2 year period, when the child is paying attention to single words, and to the pragmatic force of utterances, it is the mother's reduction in sentence length per se., and her ability to encode appropriately that aspect of the situation which the child is attending to, which is significant for both comprehension and expression. He predicts that the fewer words the mother uses, the easier it should be for children to make word-object associations. To date, there is no empirical support for this hypothesis, but researchers are beginning to pay attention to the structure of adult-child utterances in this period.

Ferrier's research (1978) suggests that the repetitive nature of mother's speech to young children helps direct them to what words to imitate (interestingly these often seem to be the final words in the mother's utterance).

In conclusion, there is agreement among researchers that children develop their understanding of language in a way that parallels their expressive development. They begin by attending to familiar social routines - the social games played between mothers and children described above - and at first they respond chiefly to the illocutionary level of language; its pragmatic force. A child at this level will respond in the same way to 'no' and 'yes' if these are said in the same forbidding tone, with the same accompanying gesture (Huttenlocher 1974). During the second year, a shift takes place from pragmatic to semantic-pragmatic understanding. Children at this stage, if asked to 'make the green car push the red car' when the green car is fixed in one position can understand the individual word meanings, relating to pushing and cars, but are tied by the context, physical arrangement of the cars (Bridges et al 1981). Understanding of grammatical rules, and their effect on meaning, is a later stage of development.

During the second year, children 's processing capacities increase beyond the one word stage, and they increasingly begin to be able to interpret words independently of context - but this again is a process which takes many years before it is accomplished. The most important conclusion from these few early studies is that comprehension is not to be viewed just as a skill in decoding language but as an active part of communication. In order to gain real insight into how it develops, we need more longitudinal, naturalistic studies of children at the prelinguistic, and the first words stage of development, which focus on their responses to the speech addressed to them, and their active participation in dialogue.

FIRST WORDS IN THE CONTEXT OF DIALOGUE

By the time children come to use their first words, in what we have identified as the transitional stage, it seems that they are practised in turn-taking, can initiate topics non-verbally and are coming to do so verbally. Also they can predicate in a limited sense - insofar as their performative words (or vocal signals) may function as comments on an implicit topic. DOWN said as a tower of bricks falls down, or THERE as an object is handed to the mother. How do these topics and comments become integrated into the structure of a verbal dialogue?

When adults converse, their utterances must be relevant in several senses: sequentially, to the preceding utterance, and hierarchically, to the general topic of conversation (RIS II, 2, p.11). They must also be structurally appropriate, in that questions, statements, commands, directives and so on all require particular responses.

At the beginning of the second year, children seem to be able only to handle relationships at the sequential level - they can make one utterance contingent upon another, and they can shift the topic, as S does in the picture book routine referred to in Example E, overleaf. But they cannot develop the hierarchical structure of a topic, as G does in the following conversation with her father.

- F why did you quarrel with Amy?
- G well, firstly she wouldn't let me in and secondly she wouldn't let S play in the castle
- F well, listen, you're not to hit people - especially not people smaller than you
- G (pause) she was naughty not to let S play in the castle (pause) she's three
- F yes, she's much smaller than you
- G and I'm four

In this conversation, the relationships between the utterances have to be explained in terms of their hierarchical relation to the general topic of conversation - G's relationship with Amy. S, as he begins to use words can sustain a topic over a number of conversational turns, but he is dependent on his mother to construct the sequence for him.

Example E: Situation: mother is looking at a book with child, aged 15 months

1. Mother Oh look, what's this?
2. Child Smacks his lips
3. Child ho hot
4. Mother Yes - hot dinner
5. Mother What's this?
6. Child Duck
7. Mother Yes a duck
8. Mother And Who's this?
9. (No reply)
10. Mother It's a cow - she goes moo
11. Child
12. Mother What is it?
13. Child
14. Mother Yes, it's a tractor, goes brrm-brrm
15. Mother And look - what's she doing here? She's drinking, she's drinking her tea
16. Mother Look darling
17. Child Shakes head - looks at mother's cup of tea
18. Mother Do you want a drink? Do you want a drink darling?
19. Child Point to kitchen

Foster suggests that the use of conversational routines function to allow the child to practise producing sequences of utterances related to the same topic. As children get more practised, they begin to play with the routines, and at the propositional and semantic level manipulate them, gradually freeing themselves to take more control over the conversation. S at a slightly later stage of the picture book game than the example here, introduced a new element by deliberately wrongly naming familiar pictures as a joke.

Mothers at this stage are still responsible for the overall structure of the dialogue.

She will pick up and comment on, and incorporate into the talk, objects of interest in the environment, actions of the child and so on, which helps to increase the cohesiveness of the child's simple communications which are themselves grounded in the here and now. For example, the child may only respond contingently to a request to blow on his food, or may point to his food ... but the mother will incorporate those little snatches of communication on the part of the child in general talk about the meal. Foster (1982).

Another way of 'keeping a conversation going' is by the use of structural devices such as repetition, which is a principle strategy used by children when they begin to use words - as in the following example of S and his mother:

M that's a shoe
 on your feet
 [ʃv̄] (shoe)
s
M where are your feet?
 there are your toes, look
 your shoe goes on your foot
 [fv̄·fv̄] (foot, foot)
s
M on your foot, yes that's right
S (looks at his foot)

The routines, and the repetition also illustrate another important aspect of the development of dialogue: that children seem to learn about handling dialogue through actually 'doing' it, and being interpreted as conversationalists (Foster 1982). The way in which dialogue develops, from birth through to 12-15 months, illustrates that for the child, practice in the form of dialogue precedes his understanding of how it works.

Dialogue and Multi Word Utterances

There is some evidence to suggest that the structure of dialogue at the stage of first words may facilitate the acquisition of word combinations. Greenfield & Smith (1976) suggest that question and answer structures give the child experience of sequencing words. In two-word combinations the child often uses the final word in a question directed to him, as the first word of the combination.

M what do you want?)
C want apple)

M where did we go?)
C go nana)

Greenfield & Smith produce some examples of how such structures developed in the two children of their diary study; however, more detailed observations on a larger sample of children is needed to confirm their suggestions. Secondly, Scollon (1979) found evidence of what he terms 'vertical construction' at the one word stage, where a child will produce sequentially in a conversation words which he later uses in combination.

N what's that you've got there?
 S teddy
 (hugs teddy, briefly look across room, sees hat)
 hat! (points)
 (fetches hat, puts on head)
 teddy hat (puts hat on teddy's head)

This seems to occur around the time that children are beginning to produce word combinations; a period outside the scope of this study.

In conclusion, although studies of discourse behaviour at the earliest stage of language are still somewhat few, we know something about the child's ability to participate, acquired as he and his mother develop turn-taking skills and conversational routines during babyhood. More important, linguists have the framework, derived from pragmatic theories, within which to study the relationship of child and adult dialogue skills, and these are increasingly a focus of child language research.

INDIVIDUAL DIFFERENCES IN LANGUAGE ACQUISITION

Researchers who like Carter, have looked in depth at the development of language from the end of the first year to age 2 have found a similar shift from the expression of pragmatic intention alone to the use of language with pragmatic and semantic force (illocutions — illocutions + locutions) (McShane 1980; Dore et al 1976; Halliday 1975, 1979). However, at this stage it is not possible to generalise about the pathways which individual children take to arrive at this locutionary destination.

A very real complication for researchers trying to identify trends in behaviour, is that children vary enormously in the manner and timing of their development. Some, like G, seem to use referential labels almost from the start. Others, like S, use words in a restricted way for a much longer period. Early studies of language acquisition sought to establish a set of norms by identifying universal patterns of behaviour. There is now increasing interest in individual differences in development, and the trends which characterise them. In relation to language itself, studies have found differences in rate of acquisition; in the kind of vocabulary items acquired; in early sentence construction; in the propensity to imitate, and in the extent of errors (Bowerman 1978).

Particular attention has been paid to differing styles of acquisition. Nelson (1973) claimed to identify two distinct patterns of development. "Referential" children were orientated to the development naming - classifying and identifying things in the world - whereas "Expressive" children were more likely to use words and phrases to regulate social interaction. The considerable body of research which substantiates this claim, suggests that the referential style is associated with a faster rate of language acquisition, and the development of productive speech, whereas the expressive style is associated with slower development, and the use of "expressive, ideomatic, imitative - empty forms" (Bates 1979).

There are criticisms of this line of research which suggest that the distinction between referential and expressive may be artificial (Thatcher 1976; Bowerman 1976). "Referential" - "expressive" categories are polar ends of a dimension which can be used to characterise ways using language - but some children may use both 'styles' at different times as they develop (Thatcher 1976). However, this does seem to be a significant distinction, alerting us to the fact that there may be at least two broad strategies for 'learning language'.

When we come to consider the factors which affect the development of both language and communication, it is no surprise to find variation in every area - social background and styles of communication; early patterns of mother-infant interaction; maternal speech styles; cognitive and emotional development (see reviews by Wells 1979; Bates et al 1979).

Because the study of variation is only in the initial stages, it is too early to draw general conclusions which would synthesise all the information from the various domains, and enable us to predict the different courses of development.

CONCLUSION

In the introduction to this synthesis of information, two questions were posed: how do acts of communication develop? and how do acts of communication become acts of language? We have ample evidence to answer the first question, but the second remains to be fully resolved.

Communication is present from the beginning between mother and child, because of the mother's ascription of intention. The baby's behaviour at once has a communicative effect (in the perlocutionary sense). The mother's pervasive interpretation is not however based on a fantasy. Babies are innately 'geared up' to communicate through their specialised responses to human speech and human faces.

The earliest communication process we observe is the creation of dialogue, as the mother fits her conversation around the baby's predetermined cycles of behaviour. At first, the content of the dialogue is supplied by the mother and is almost wholly concerned with the infant's state. Gradually environmental topics are introduced as the baby gains more control over, and interest in, the world outside his relationship with his mother. Together they construct acts of reference, through gaze at and actions upon objects, which increasingly form topics of conversation, which the baby incorporates into his interactions with his mother as his attention control matures. At the same time, his behaviour is becoming more intentional - first he can bring gaze and vocalisation and actions under voluntary control, and then use them intentionally for communicative purposes. As he learns basic notions of cause and effect, he begins to use these behaviours to cause things to happen. Instead of reaching to reach an object, he reaches to signal to his mother that he wants it. Once he can do this, he begins to develop illocutionary acts of communication which realise social goals - or 'vocabulary' or signals, gestural or verbal, to realise different pragmatic intentions.

And how do these develop into language? The groundwork of language skills such as reference, predication and grammar seems to be developed during the prelinguistic period, through interactions between parents and children. However, using language involves the capacity for symbolic representation, and this seems to develop gradually during the second year, as signals become progressively decontextualised, in comprehension and production, and attain symbolic force. In addition, it seems possible that some children - perhaps those who are oriented particularly to the acquisition of object names - suddenly grasp the idea that 'things have names' which fuels their acquisition of vocabulary. Other children may continue to use language primarily in the service of social goals, and develop a different style of communication. The one word stage of language development is seen as essentially transitional, a period during which pragmatic messages gradually acquire semantic force. The contexts in which children use their single words appear to lead the way to the first combinations of symbols - the first use of structure. It is probably at this stage that we can begin to talk with certainty of children using language. We still do not know enough about what sets linguistic ability apart from communicative ability - what are its cognitive correlates? is there such a thing as naming insight, and what does it involve? But we do now know a great deal about the essential continuity between acts of communication and acts of language; and that the roots of the earliest 'sentences' can be traced back to preverbal behaviour.

"Consider the utterance 'mommy up' ... used by an 18 month old child. Here 'mommy' does not refer to mother but seems to have developed from the total stylisation of crying into a repeated nasal phrase. It retains the same function as crying, that of attracting attention and making a demand. 'Up' specifies the child's intention, and thus functions to the same end as arm-raising did earlier. The two-word utterance 'mommy up' has thus both the same form and use as the two-gesture act of crying and arm-raising and developmentally the two abilities appear very closely related" Lock (1980).

APPENDIX A

PRAGMATIC CLASSIFICATION OF EARLY LANGUAGE

In the earliest stages of language acquisition, as we have seen, children seem to use words and gestures that directly reflect the goals they wish to achieve. Words are 'what you say when you do something' - the meaning is the intention. These may be communicative, or non-communicative; although emphasis has been laid on the development of communicative signaling, children do of course use words 'for themselves', in play and pre-sleep monologues (Rees 1973). Do different children express the same kinds of intentions - and can one construct a system of classification which has universal application?

In general terms, all researchers who have classified the functions of one word language have come up with the same kinds of categories. At around 12 months, in the proto-language phase, all children seem to distinguish between requesting, indicating, 'social' signals such as greetings and vocatives, and expressions of positive and negative emotion. However, even for single words the categories proliferate soon after this point, and as can be seen from Table 3, researchers classify their data in rather different ways. In fact, there are a number of problems relating to functional classification at this stage.

1. Children's language does not fit neatly into the categories designed by researchers, partly because these are abstractions which simplify the data, and partly because in Ryan's words, "We cannot assume when a child starts to produce one word utterances, that the possible meanings of her utterances are clearly delimited for her as they are for the adults who interpret them" (1974). Indeed, the very act of negotiating meaning, which is evident in adult expansions of child speech, probably contributes to the child sharpening up the meaning of what he says.
2. With the exception of McShane (1980) and Carpenter et al (1982), researchers have derived their systems from between one and two children. Because of the wide variation in language development, it is unlikely that a system derived for one child can be exactly replicated with another, except at the level of superordinate categories. Before we can accept one system as a basis, there needs to be wider application - McShane has gone some way towards providing the basis for a more comprehensive classification.
3. Because the researchers differ in their views about the relationship between child and adult language; and of course in their definition of categories, and their criteria for assigning utterances to categories, it is difficult to compare one system with another (McShane does in fact make relevant comparisons). Even where researchers use the same terminology, the categories differ somewhat.

4. From very early on, children's utterances can be classified under more than one heading, although for the child they seem to be serving a single function. Hence, signals of rejection are clearly personal in function - expressing feelings of dislike, or whatever - but they are also interactional, since they are directed towards another person. Lore and McShane both see the need for a category such as answer or conversation, which captures something of the child's ability to engage in dialogue; and of course conversational responses may also involve labels, requests, and expressions of feeling.

These points illustrate the complexity of trying to categorise even the earliest functional use of language. Table 3 presents a summary of the categories used by some of the leading researchers in the field.

When children begin to use consistent signals to communicate, it is useful to note the ways in which they function for him. One approach might be to describe objectively the child's communication, and the context in which it occurs - rather as Carter does - and then consider whether his signals can be grouped into categories. For the early stage, the fundamental distinctions seem to involve requesting; indicating/labeling; expressions of feeling; social routines, and transactions such as giving and taking. Other dimensions to be noted include the ability to take part in dialogue at a primitive level - by responding when addressed, repeating and joining in familiar routines (see Scollon 1979); and the use of sounds and gestures to accompany play.

However, there is not as yet enough information on which to base a reliable profile of pragmatic development, and such suggestions can only be provisional at this stage.

Carpenter and Coggins have gone some way towards validating their communicative inventory, they do not include categories such as exchange and greeting, but if these are added, this makes a good starting point.

**TABLE 3
FUNCTIONAL CLASSIFICATIONS OF ONE WORD SPEECH**

Autho	No. Subjects	Data Collections	Period Observed	Main Functional Categories
Halliday (1975)	1 (own son)	Diary study	6 months – 2 years Used from 9 months 12 months 16-18 months	(Instrumental (I.e. requests) (Regulatory (i.e. commands) (Interactional (used to interact) (Personal (expressing self awareness – including naming) Imaginative (used in pretend play) Heuristic (informative questioning)
Dore et al (1976)	2	(? Documented elsewhere)		<u>Primitive speech acts</u> Labeling Repeating Answering Requesting Calling Greeting Protesting Practising
McShane (1980)	6	30-40 minute home observations at monthly intervals	1-2 years (4/6) 14 months – 2 years (1/6) 16 months – 2 years (1/6)	Regulation (commands and requests) Statement (naming, associating, describing) Exchange (giving and receiving) Personal (expressing of doing and feeling) Conversation (imitations, answers, questions) Miscellaneous

/Contd...

TABLE 3 (Contd.)

Autho	No. Subjects	Data Collections	Period Observed	Main Functional Categories
Carter (1978)	1	1 hour observations in playgroup at monthly intervals	1-2 years	<u>Goals of signaling</u> Attention to self Attention to object Request object Request transfer Dislike Disappearance Rejection Pleasure/ surprise/ recognition
Carpenter et al (1983)	6	1 hour video at monthly intervals for 8 months	8 months – 15 months	Request object Comment on object Request for action Acknowledging Protesting Answering Commenting on action Request for information

NOTE:

The systems used by Halliday and McShane are hierarchical. The main functions are subcategorised into specific functions, and at the lower levels there is representation of the form and meaning of what the child actually says.

Carpenter, Carter and Dore's categories are at about a second order level compared to Halliday and McShane.

APPENDIX B

SEMANTIC CLASSIFICATION OF EARLY LANGUAGE

Using a purely pragmatic classification is inadequate to describe children's utterances once they start to use referential language, for at this stage we need some means of systematically representing the relationships between the words and the concepts they denote, as encoded by the child. He has to acquire two kinds of semantic knowledge:

"Learning the meaning of any new word involves learning to talk about relevant objects, actions or relations in the world of experience. However, since all words except proper names, such as 'Mary', or 'Fido', apply to classes of objects, actions, and relations, and not to particular instances, the child's task eventually involves learning two sorts of relationship. Firstly he has to learn how the word relates to the appropriate conceptual category, and secondly he has to learn how it relates to other words in the same semantic domain." Wells (1981)

So the child first learns how to map concepts onto words, and words onto concepts. The difficulties he experiences in doing so are reflected in the 'imprecise' use of words which are characteristic of early language, such as under and over extensions. Next, he must learn about relationships between words, the 'roles' that people, objects, actions and places assume through language.

Some of the commonest terms to describe semantic roles, or 'cases' are as follows:

AGENT	animate being who acts upon objects, others and self
ACTION	the action involved
OBJECT	the object acted upon
INSTRUMENTAL	the inanimate force or object causally involved in an action or state
DATIVE	the animate recipient of the action of an agent
LOCATIVE	describes place
POSSESSOR POSSESSION	denotes ownership
ATTRIBUTION	is broadly adjectival in function

For further details see Greenfield & Smith (1976); Brown (1973).

A grammar which describes children's language in these terms, is often known as a 'case grammar'. It has proved a very useful way of describing formally the sorts of relationships which are expressed in children's first sentences. It allows us to account for how sentences with an identical surface form can 'mean' different things in different contexts, as some examples will show:

<u>Sentence</u>	<u>Context</u>	<u>Semantic Relationships</u>
'Daddy football	(a) S picks up football used by Dad	POSSESSOR/ POSSESSION
Daddy 'football	(b) S holding football, looks up at Dad	AGENT/ OBJECT or ENTITY
'Daddy kiss	(a) Dad is kissing S	AGENT/ ACTION
'Daddy kiss	(b) S about to go out, says sentence, runs to kiss Dad	DATIVE/ ACTION
'Teddy chair	(a) S points to the chair that teddy sits on	POSSESSOR/ POSSESSION
Teddy 'chair	(b) S puts teddy in the chair	AGENT/ LOCATION

But how does the child move from first words to the stage of encoding semantic relationships in word combinations? One school of thought holds that as the child develops referential language at the one word level, he comes to express systematically his relationship to the world around him, and that, by a process of rich interpretation, it is possible to assign semantic roles to single words, (Tick 1980; Greenfield & Smith 1976). If we analyse the single words which appear in different contexts, we end up with something like this:

<u>Context</u>	<u>Word</u>	<u>Pragmatic Function</u> (meaning) from <u>McShane (1980)</u>	<u>Semantic Role (after</u> <u>Greenfield & Smith</u> <u>1976)</u>
S sitting up in bed sees G come in the room	[leɪ]	(Here you are g!) Greeting	Agent
S, holding a biscuit looks at Mum. G is in the other room	[leɪ]	(I'll give this to G) Exchange	Dative
S is looking at G's sock. G is away	[leɪ]	(This is G's sock) Statement	Possession, or Association
S comes in wailing, after altercation with G	[leɪ]	(G hurt me!) Statement	Agent (as author of action)

([leɪ] is S's version of G's name).

Of course, this kind of interpretation is criticised on the grounds that it is the adult observer who is inferring the expression of semantic roles. However, Greenfield & Smith, in their diary studies of two children, claimed to find a systematic ordering in the kinds of relations expressed by single words. The children first used performative words of the kind we have identified to indicate or express volition, then labels, then words in requests. Relationships involving actions and entities, (or agents and objects) emerged before relationships between two entities, such as possession, location or association. Another sequence which seems to characterise the development of the children is the familiar process of decentration - relations involving the child preceded those involving other people (Lock 1980).

If a similar ordering were found with a larger sample of children, this would be a powerful argument in support of assigning some kind of semantic status to single word utterances.

The attraction of this theory is that it allows for continuity between prelinguistic communication, and the beginnings of grammar. In his first words, the child expresses concepts which are available to him from the transactions of his babyhood, to do with people who act, and objects which are acted upon. The first uses of language are interpersonal and pragmatic. Then, as meaningful words are acquired, they are used to systematically encode the relationships he perceives between the people, objects and events of his world. This theory of language development accords with Bruner's position that the roots of grammar lie in the interactions of infancy.

Again, too much speculation is involved at this stage to allow any very detailed characterisation of the semantics of single word utterances - let alone the semantics of gestures or signs used alone, or in combination with words.

Linguists have been working for some time to produce some kind of semantic framework which could be used as a clinical tool.

D. Crystal Profiling Linguistic Disability
Edward Arnold (1982)

This book includes a semantic profile (termed PRISM) which diverges considerably from the kind of case grammar described here. It charts both semantic grammar and the expansion of vocabulary (lexical semantics).

Wells, G. Language Development in the PreSchool Years
CUP, in preparation

The semantic profile to be presented here is based on the work of Wells, and his team at Bristol, who have collected an enormous body of data from their sample of preschool children, analysed both semantically and syntactically, in a developmental sequence.

Bloom, L. & Lahey, M. (1978)
A Plan for Language Learning
Language Development and Language Disorders, John Wiley, 1978

This programme covers language development from the preverbal stage to the use of complex grammar. Semantic content, syntactic form and pragmatic function are analysed simultaneously. Single words are coded in semantic categories similar to those outlined above; sentences are classified into six major categories.

Knowles, W. & Masidlover, M. (1979)
Derbyshire Language Scheme

This scheme focuses on both comprehension and expression from prelanguage and single word utterances to complex sentences. The approach is broadly semantic but the description of categories avoids linguistic jargon (e.g. position of objects is used rather than locative).

Some of these schemes are taught on courses advertised in professional journals.

READING LIST

OVERVIEWS OF COMMUNICATION AND LANGUAGE DEVELOPMENT

McClowry, D., Guildford, A.M., Richardson, S.C. (Eds) Infant communication: Development, assessment and intervention, New York, Grune-Stratton (in press)

McShane, J. Learning to talk, Cambridge University Press, 1980 First three chapters review development of conversation, speech acts, and referential language

Schiefelbusch, R.L. & Pickar, J. (Eds) Communicative competence: acquisition and intervention, University Park Press, Baltimore (in preparation)
This book would probably have done all my work for me. Unfortunately, it was not available at the time of writing!

Wells, G. Becoming a communicator
In Wells, C. Learning Through Interaction
Cambridge University Press, 1981, Ch.2, 73-116
This is the best single article on communication development

Murry, T. (Ed) Infant communication, College Hill Press, Middlesex 1980
Covers the past 20 years research on crying and speech behaviour of normal and abnormal infants (publishers' information)

MOTHER-INFANT INTERACTION

Bullowa, M. (Ed) Before Speech, CUP, 1979

Schaffer, H.R. (Ed) Studies in mother-infant interaction, Proceedings of the Loch Lomond Symposium, New York Academic Press, 1977
These two books are collections of influential papers on the topic

Stern, D. (1977) The first relationship - infant and mother
London Fontana Open Books, 1977
This is a readable Look designed for a more popular audience which presents Stern's work on interaction

Schiefelbusch, R.L. & Bricker D.D. (Eds) Early language: Acquisition and intervention, Section II mother-child interaction, two papers by Thoman & Chapman, and discussion summary

EARLY LANGUAGE

Schiefelbusch, R.L. (Ed) Bases of language intervention, Language intervention Series, Vol.1, University Park Press, Baltimore, 1978

The following chapters are recommended:

Ch.3 : Cognitive factors in early linguistic development, L.B. Leonard pp.67-95

Ch. 4 : Semantic and syntactic development: a review of what, when and how in language acquisition, pp.97-191

Ch. 5 : Pragmatics of language: applications to normal and disordered language development, N.S. Rees, pp.191-269

Schiefelbusch, R.L. & Bricker, D.D. (Eds) (1981)

Early language: acquisition and intervention

Ch.2 : Reconceptualising language acquisition and cognitive development
R.F. Cromer pp.51-139

These papers all cover much the same ground, but from different perspectives

Bates, E., Camaioni, L. & Volterra, V. (1975) The acquisition of performatives prior to speech, Merrill-Palmer Quarterly, 1975, Vol.21, No.3, 205-224 and reprinted in Ochs, F. & Schieffelin, B. B. Developmental Pragmatics, New York Academic Press, 1979, Ch.5 pp.111-129

This is the best introduction to the work of Bates and her group

Fletcher, P. & Garman, M. (Eds) Language acquisition: studies in first language development, Cambridge University Press, Cambridge, 1979

Part 1 The transition into language-contains some useful papers; the one by Grieve & Hoogenraad is especially recommended

Nelson, K.E. (Ed) Children's Language Vol.111

Lawrence Erlbaum Associates, Hillsdale, New Jersey 1982

Contains some useful papers which focus on the transition from prelinguistic to linguistic communication

Schaeffer, B. (1982) Linguistic functions and language intervention

Part I Concepts, Evidence and Instructional sequence

J. Special Ed.16, 3, 1982, 289-308

Part II Special Topics

J. Special Ed.16, 4, 1982, 401-411

Schaeffer suggests in these two papers how an approach based on pragmatic theory may be applied to the teaching of sign language to nonverbal children.

In Part I he reviews the literature on the emergence of functions in children's speech (based on Halliday & Carter's work) and uses this as the basis for teaching functions in a sequence. Halliday's format is simplified and adapted to meet the needs and capacities of handicapped children.

In Part II he applies this approach to 5 particular topics - assessment and programming; the needs of the severely and multiply handicapped; population differences in the acquisition of functions; and the teaching of prerequisite skills (such as eye contact) - which he deems unnecessary.

These papers offer useful practical guidelines, based on the author's experience of teaching handicapped children. However, the evidence for emergence of functions is derived from two children only and may well be qualified by future studies.

MATERNAL SPEECH STYLES AND CHILDREN'S LANGUAGE DEVELOPMENT

This field of study is reviewed by Bowerman 1978; Croner 1981; Chapman 1981.
The largest single collection of papers on the subject is:

Snow, C. & Ferguson, C. (Eds) Talking to children, Cambridge University Press, Cambridge 1977

ASSESSMENT

Kiernan, C. & Reid, B. (1983)

Pre-verbal Communication Schedule (PVC)

Is a comprehensive checklist of non-verbal communication skills, which must be undertaken by someone who knows the subject well

Available from: Thomas Coram Research Unit, University of London, Institute of Education, 41 Brunswick Square, London WC1 N 1AZ

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Early language acquisition: a model and some data

In C. Ferguson & D. Slobin (Eds) *Studies in Child Language and Development*

New York; Holt (1973)

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