AN INVESTIGATION INTO THE USE OF INFORMATION-GATHERING STRATEGIES IN THE ACQUISITION OF LANGUAGE

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ABSTRACT

It is proposed that young children who already have
some degree of linguistic ability will use various
verbal information-gathering strategies to enhance
that ability. Specifically, it is suggested that
such children formulate hypotheses about the mean-
ings of words and that they use language in various
ways to elicit feedback from others as to the
accuracy of these hypotheses.

A selective review of the literature on cognitive
and language development provided a theoretical
framework within which to pose this problem and from
which guidelines for data analysis could be drawn.
The aim of the study was to identify the use of
various verbal information-gathering strategies in
individual children. This was done by recording
sequences of interactions involving individual
children and various others and then examining the
transcripts of these recordings for regularities
which suggested the use of such strategies.

Verbal information-gathering strategies were thus
initially identified by noting regularities amongst
those interactions where a child appeared to be
seeking information about language. Four such
strategies were found to be used by all three
children who participated in the study. Other

strategies were found to be specific to one indivi-
dual or to two of the children who were siblings.
Once these strategies were identified, the data was
analyzed for individual instances of each strategy.
Discussion of the use of these strategies includes
consideration of the role of questions, selective
imitation, naming or stating and metaphor in lan-
guage development. The relationships among concept
formation, memory and language development are also
briefly explored. Further support for the view of
the young child as testing hypotheses about word
meanings came from the observation that two of the
children showed a definite preoccupation with the
meanings of certain words on various occasions
throughout the study.

While the findings of the study show that these
three children did use various verbal information-
gathering strategies, it remains to be shown how
important such strategies are for language develop-
ment and what roles may be played by different
strategies.

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INTRODUCTION AND AIM

While there has recently been a considerable growth
of interest in the role of adult speech in language
development (Wells and Robinson 1982), fewer studies
have attempted to explore the role played by the
child's own speech. Those studies which have
investigated the child's part in language develop-
ment have tended to focus on language comprehension,
or strategies for processing incoming verbal infor-
mation. Notable exceptions are Nelson (1973), who
looks at both comprehension and production, and
Snyder-McLean and McLean (1977, 1978), who have
attempted to evaluate both (linguistic) information-
processing and information-gathering strategies
(verbal and non-verbal).

The child's role in language development is un-
doubtedly less accessible for study than that of the
adult, but investigation of this aspect is crucial
for an understanding of normal language development
and of any problems or retardation in this area.
So, although language development must always be
situated in the "language-transmission partnership"
(Snyder-McLean and McLean 1978), the focus of this
study was on the active role played by the young
child.

As far back as eighty years ago theorists were con-
cerned with the question of whether the child's role
in language development was an active or passive
one, although for some time after that the issue lay
dormant. Since Chomsky (1959 cited in Deutsch
1981) challenged the behaviourist view on the mecha-
nisms underlying language development this contro-
versy has come to the fore once more, with many
theorists arguing that the child should be seen as
actively involved in a process of re-invention or
creation of language (Deutsch 1981). Much of the
work stemming from this approach has been concerned
with the way the infant learns to communicate before
he is able to use language to do so, for example The
Guided Re-invention of Language by Lock (1980).

The present study, on the other hand, was concerned
with the child who already has some linguistic abi-
lity, which he uses in various ways to enhance his
mastery of language. It was suggested that the
young child may be seen as formulating and testing
various hypotheses about language in general and
about the meanings of words in particular. The
main hypothesis of the study was that one of the
ways in which the child might achieve this would
be to use various verbal strategies to manipulate
the linguistic environment, thereby eliciting infor-
mative feedback from others. The aim of the study

is to establish whether children can be found to use such strategies, and if so, to identify examples. A further concern of the study is the question of individual differences among children in the use of this type of strategy.

PART I : THE PROBLEM AND REVIEW OF LITERATURE

CHAPTER ONE

SOME INITIAL STATEMENTS OF THE PROBLEM EXPLORED BY
THE PRESENT STUDY

Before examining the view of the child described in
the Introduction in terms of various theories and
studies in the fields of cognitive development and
the development of language, some initial statements
of the problem will be outlined.

Horgan (1981) presents a collection of spontaneous
jokes from the longitudinal study of one child's
language development. According to Horgan, most of
the jokes presented "are closely related to her
developing language skills and demonstrate early
metalinguistic abilities" (Horgan 1981 : 218). She
categorizes these jokes into four types:

- violations of semantic categories

- phonetic pattern games

- changing established patterns

- riddle-like questions

Focusing on the first type, it appears that Kelly -
described as a "somewhat atypical child", "the
first-born daughter of a philosopher and a psycho-
linguist" - frequently made jokes by violating
semantic categories. In other words, she appeared
to formulate a hypothesis about the boundaries of a
word's meaning, and then use the word in a context

far outside those boundaries. Her utterance would

be absurd, and therefore humorous. This was

clearly an established pattern of interaction built

up between herself and her caretakers, through which

she could initiate an exchange which would provide

informative feedback about the accuracy of her

interpretation of the word's meaning. Should she

be incorrect in her hypothesis, and fail to break

out of the relevant semantic category, the joke

would fail, and no doubt an explanation - or at

least some elaboration - would ensue.

Horgan reports that:

> Throughout her development, the acquisition
> of a new word would stimulate a joke attempt
> of this type. When she was 1;11 I told her
> · I was proud of her. She correctly surmised
> that only people are proud of you. She
> used a joke to "show off" (and to test) her
> new knowledge: "Daddy's proud of you.
> Grandma's proud of you. Uncle David's
> proud of you. Hamburger NOT proud of you.
> Ha, ha." Of course, sometimes her analyses
> were incorrect and her jokes failed. After
> asking me why men could not wear dresses and
> contemplating my response about customs, she
> concluded that customs were something only
> men had. "Daddy has a custom. Uncle David
> has a custom. Mommy has a custom! Ha, ha,
> mommies can't have customs! The clock has
> a custom! Ha, ha, clocks can't have customs!"
> (Horgan 1981 : 219)

Horgan suggests that telling jokes in this way is a

very effective strategy for someone learning a lan-

guage. Having heard a new word, the child formu-

lates a hypothesis about its semantic restrictions,

and tests this hypothesis by violating these rest-
rictions. Of course this is a particularly sophis-
ticated and highly individualised type of interac-
tion for such a young child to participate in.

However it does lead to speculation on the possibi-
lity of various similar (though possibly simpler and
more common) types of interaction, as an important
part of the process of language development. This
suggestion would appear to fit in with Snyder-McLean
and McLean's (1978) discussion of information-
gathering strategies. They see the child as making
use of two types of language acquisition strategies,
information-gathering strategies (G-strategies) and
information-processing strategies (P-strategies).
G-strategies they define as:

> those kinds of overt interactive behaviour,
> both verbal and nonverbal, that enable the
> child to gather from the plethora of linguis-
> tic information provided by his environment
> that which is necessary and appropriate for
> the child's current language learning needs.
> (Snyder-McLean and McLean 1978 : 307)

While P-strategies have received a fair amount of
attention in recent studies of language development
(e.g. Slobin 1973), G-strategies appear to have been
less favoured. As Snyder-McLean and McLean point
out, it is generally accepted that language develop-
ment in the child occurs in the context of inter-
action with competent speakers of language. What
is subject to differences of opinion is the level of

contribution assigned to child and adult respec-
tively.   So theorists vary in the emphasis they
place on the roles of adult and child in what
Snyder-McLean and McLean call the "language-
transmission partnership".   Some believe the
adult's role to be of primary importance and
interest, while others simply see this side of the
interactive process as more accessible to rigorous
investigation.   As a result, quite a number of
studies have been carried out to look at such
questions as:

- how mothers maintain "dialogue" with two-
  year-olds (Kaye and Charney 1980)

- the role of adult speech in language
  development (Wells and Robinson 1982)

- mother's answers to children's questions:
  from socio-economic status to individual
  differences (Robinson 1981)

- the special speech style adopted by adults
  when talking to children (Snow 1979)

If one believes, as Snyder-McLean and McLean and
presumably Horgan do, that the child must be seen as
an active participant in a language teaching-
learning partnership (Snyder and McLean 1977), then
it becomes clear that it is important to study the
role of the child, not only in reacting to

facilitatory behaviour on the part of the adult, but
also in initiating potentially informative patterns
of interaction.   And in investigating this aspect
of language development, it is important to keep in
mind the likelihood that there will be marked indi-
vidual differences in the way in which children take
an active role.   Just as studies of the adult role
assume individual differences among adults in faci-
litating the child's language learning, so it is
likely that there will be similar individual diffe-
rences among children in eliciting this type of
facilitating behaviour.   This is an aspect of lan-
guage development still to be investigated.   (Wells
and Robinson 1982)

The need to acknowledge individual differences in
this regard is further highlighted by a considera-
tion of how Horgan, on one hand, and Synder-McLean
and McLean on the other, came to be interested in
this aspect of language development.   Horgan
observed a very individualised joking pattern in a
child whom she describes as atypical - a child whose
parents both took a great interest in language and
language development.   Kelly was, in fact, exposed
to language games when she was very young, and one
would certainly not expect many children to develop
such a sophisticated mode of verbal interaction at
this early age, if at all.   However in describing

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this rather startling pattern of interaction in one child, Horgan has opened the way for an investigation into similar, if less obvious, patterns of interaction between other children and their caretakers. For if Horgan is right in suggesting that "this sort of joke-telling is a very effective strategy for a language learner" (1981 : 219), then it would be reasonable to look for various strategies used by other children.

If such strategies could be found, they would be likely to be of varying degrees of efficiency, which leads to a reflection on Snyder-McLean and McLean's interest in this field. Unlike Horgan, these theorists came to the topic from a concern with language acquisition as it relates to retardation and intervention. Snyder-McLean and McLean (1978) discuss verbal information-gathering strategies in an attempt to outline a conceptual framework according to which language deficiency is to be seen as "a process, rather than a product-deficit" (1978 : 324). The verbal G-strategies outlined by them fall into two categories:

1. Selective Imitation (spontaneous verbal imitation)

2. Metalinguistic Utterance Production - which they define as encompassing "any process by which

non-imitative expressive language functions as a
means for the child to acquire further
linguistic knowledge." (1978 : 314)   Within
this category they propose a continuum of meta-
linguistic utterance types, as follows:

   (i)   Interrogative utterance production
          ("the most intentional form of meta-
          linguistic G-strategy")

   (ii)   Hypothesis-testing (referring to
          "utterances which seemed specifically
          designed to evoke a confirmation or
          correction from a more mature speaker")

   (iii) Evocative utterance production (a type
          of "strategy" characterized by utterances
          which "do not necessarily reflect any
          such intentionality or even self-
          conscious uncertainty, but are nonethe-
          less functional in evoking a linguistic
          response from a more mature speaker.")
          (1978 : 318)

INTERROGATIVE UTTERANCES WH-QUESTIONS	"HYPOTHESIS TESTING"	EVOCATIVE UTTERANCES
Example	Example	Example
Child points to fox at zoo, says: "Wha↗"	Child points to fox at zoo, says: "Doggie↗"	Child points to fox at zoo, says: "Doggie↘"

Most ———————————————————————— Least
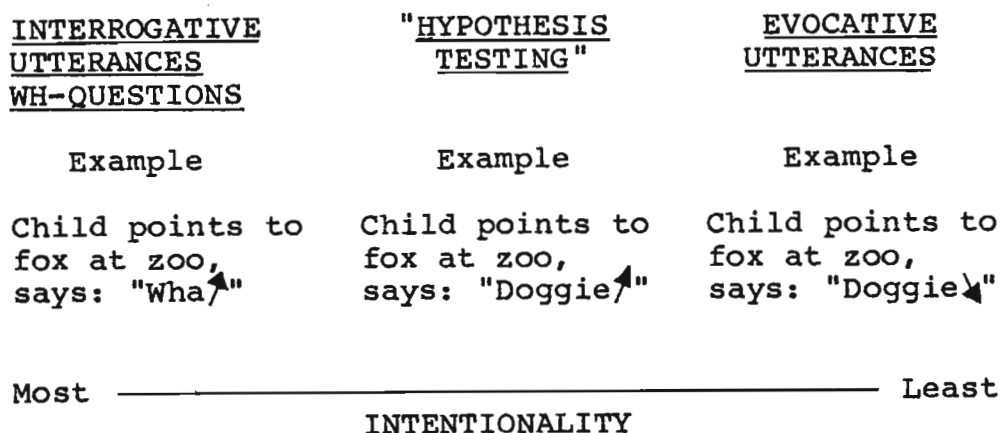
INTENTIONALITY

Figure 1: Proposed continuum of intentionality for metalinguistic utterance types. Rising and falling intonation is indicated by direction of arrows. (Snyder-McLean and McLean 1978 : 315)

Their proposal of the different verbal G-strategies operating in the course of normal language development is a tentative one, and they emphasize that a great deal of research must be done before the role of such G-strategies can be established. Apart from investigating their frequencies of occurrence, they believe it essential to evaluate their developmental value in the process of language acquisition, and the nature of the contextual or linguistic variables controlling their occurrence.

Horgan, too, outlines directions for future research. She suggests various factors which she believes might account for Kelly's individualised pattern of joke-telling, including:

- her exposure to and reinforcement for language games

- her advanced metalinguistic knowledge

- cognitive ability, familiarity with jokes, and attention to language

- being a reflective, rather than an impulsive child

- her high tolerance for degraded stimuli

- a tendency to focus attention on patterns

Horgan believes that all the above factors made some contribution to Kelly's spontaneous joke-telling, and suggests that future research is needed to investigate such individual variations and how these relate to humour.

So Horgan is concerned with explaining the linguistic behaviour of a highly competent user of language, whereas Snyder-McLean and McLean hope to stimulate research into the nature of aberrant language development, where an understanding of strategic verbal behaviour could contribute to language training programmes. Approaching the issue from quite different directions, both Horgan, and Snyder-McLean and McLean acknowledge the tentative nature of their understanding of the role of such strategies as are used by children during the course of language development (and the development of

humour - Horgan), and that the nature and efficiency of these strategies will vary considerably amongst children.

CHAPTER TWO

THE CHILD AS HYPOTHESIS-TESTER: THE ACTIVE
LEARNING ROLE

2.1   INTRODUCTION

The notion of the child as testing hypotheses about
language can be seen as a much broader one than imp-
lied by Snyder-McLean and McLean (1978), who catego-
rize such hypothesis-testing as one type of metalin-
guistic utterance production.   The notion of the
child as hypothesis-tester is in fact central to the
study of the active role played by the child in the
process of language development.   For, underlying
any form of confirmation-seeking by the child about
her understanding and use of language is the assump-
tion that she entertains some hypotheses about that
language.

Chomsky (1965, 1976) sees the child as operating on
the basis of various hypotheses about language.
These are hypotheses about the grammatical structure
of language and derive, not from experience, but
from the child's genetic inheritance as a member of
the human species.

Various others see children as formulating and
testing hypotheses about the linguistic code and
somewhere in between Chomsky's notion of innate
hypotheses and a behaviourist view of the passive

learning of language according to the principles of association lie many and varied views of the child as an active language learner. One such view is that of Brown (1958), who proposes a developmental model referred to as "The Original Word-Game". The participants in this game are a mature speaker of a language and a child who is learning that language. According to the rules of this game, the child formulates hypotheses about category membership on the basis of names which the adult (mature speaker) has given to things. The child then tests these hypotheses by naming unfamiliar things, an activity which is monitored by the adult, who provides corrective feedback if the child's understanding of a category does not appear to fit with her own.

Many theorists today see language learning as closely linked to the other learning activities of the child, rather than as dependent on the use of highly specific language learning skills (Donaldson 1978). According to Donaldson:

> The primary thing is now held to be the grasp of meaning - the ability to "make sense" of things, and above all to make sense of what people do, which of course includes what people say. On this view, it is the child's ability to interpret situations which makes it possible for him, through active processes of hypothesis-testing, to arrive at a knowledge of language.
> (Donaldson 1978 : 38)

Linking hypothesis-testing and language development
in this way is quite likely to hold for many people
absurd connotations of a formal operational two-
year-old.   It is therefore particularly important
to examine carefully what may be implied by these
ideas - to develop them in some detail and to
evaluate the credibility of such an approach.   Much
of this will be done in the course of discussing the
findings of the present study.   However it is
necessary to look here at how theories and studies
in the field of cognitive development might set a
framework for this view of the language-learning
child.

One general developmental model of learning and per-
formance based on hypothesis-testing principles is
Gholson's (1980) "hypothesis theory", which he des-
cribes as a synthesis of Piaget's structural theory
and information-processing theory.   Gholson's work
is actually more limited than such a description of
it would imply, since he tends to look mainly at
older children, in the context of fairly formalized
problem-solving tasks.   However the principle of a
synthesis of Piagetian and information-processing
theories is one which has been taken up by many
others, who agree with Gholson's view that Piagetian
or Neo-Piagetian models provide an account of deve-
lopmental change, while information-processing

models help to explain how structures, operations and performance are related. This is because Neo-Piagetian models give a clear account of the structural basis of operations, which is lacking in most information-processing models, while the latter focus on the relationship between executive functions and performance (Gholson 1980).

Perhaps the most important point about both the information-processing and Piagetian (or Neo-Piagetian) approaches is that they view the child as an active participant in her own cognitive develop-ment. Taking Donaldson's assertion that the mechanisms of language learning are best seen as closely related to learning mechanisms in general, together with the assumption of the child as an active participant in this process, it seems likely that a comprehensive framework for the explanation of this participation will include elements of both information-processing and Piagetian approaches.

There has recently been growing interest in iden-tifying the cognitive and social prerequisites for language acquisition. Bates (1979) describes the independent appearance in the early 1970s of various theoretical papers, all of which rejected the autonomous syntax aproach to child language (Bloom 1973, Bruner 1975, Edwards 1973, MacNamara 1972,

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Ryan 1974, Schlesinger 1974, Sinclair 1972, Slobin
1973 - all in Bates 1979).

> The key theoretical point in 1960s research
> was maintained: The child is viewed as a
> hypothesis-tester, an active creator of suc-
> cessive "theories" about his particular
> language.
> (Bates 1979 : 3)

However these theorists introduced quite a new view
of the origins of the child's first hypotheses about
language.   These origins are seen as nonlinguistic
and as lying in the social interactions (Bruner
1975, Schaffer 1977) and sensorimotor development
(as described by Piaget 1952, 1954, 1962) of the
first two years of life.

It is not appropriate for the purposes of the
present study to look at the details of the work on
cognitive and social prerequisites.   What could
prove useful is to focus on some of the basic
assumptions and principles of this work in order to
extrapolate from these to the study of language
development during the slightly later developmental
period covered by the present study.

2.2   PIAGETIAN THEORY AND THE STUDY OF LANGUAGE DEVELOPMENT

As mentioned above, many of these basic assumptions
and ideas have been derived from Piagetian theory.
Kessen and Nelson (1978) go so far as to say that

the best answer to the question of what the child brings to language is to be found in the developmental theories of Piaget.

While Piaget was not interested in developing a theory of language acquisition, his discussion of the sensorimotor origins of knowledge and the semiotic function clearly offers important potential for escape from the situation described by Miller (1975) when he said:

> We have two theories of language acquisition
> at the moment ... the miracle theory or the
> impossible theory.   (quoted in Gilbert 1978)

Much of the current research on language development appears to be of a descriptive rather than a theoretical nature, probably because the field is one in which the nativist-empiricist debate has had a particularly crippling effect. So it is to be expected that an attempt to theorize about the mechanisms or dynamics underlying language development will be influenced, implicitly or explicitly, by such a grand-scale developmental theory as Piaget's, especially in view of his interactionist position.
The most important aspect of this theory, for the present study, is Piaget's view of the origins and development of thought as lying in the constructive interaction of the child and his environment. Central to this is the view of the child as active, as manipulating his environment and thereby coming to

represent the elements of that environment inter-
nally, whether in terms of actions, images or
symbols.

Since Piaget stresses the continuity between
sensorimotor action schemes and "verbal schemes"
(e.g. Piaget 1971), his discussion of the way the
preverbal infant sets about acquiring knowledge of
the world could provide some useful insights for an
understanding of the young child's manipulation of
his verbal environment.   When Piaget (1962) does
discuss language itself (in Play, Dreams and Imita-
tion in Childhood - or more accurately La Formation
du Symbole chez l'Enfant), he emphasizes the deve-
lopmental interdependence of symbolic play, deferred
imitation, mental imagery and the child's first
verbal utterances.

Nevertheless, it must be remembered that while
Piagetian theory may have much to offer for the
study of language development, it has been left to
others to develop the implications of his ideas in
this direction (e.g. Sinclair 1972, 1978; Nelson
1973; Bates 1979; Inhelder & Karmiloff-Smith 1978,
Karmiloff-Smith 1979).

Karmiloff-Smith (1979) argues that, although the
basis of Piaget's theory is the child's logico-
mathematical interaction with the physical

environment, "his epistemology could embrace equally
constructive interaction of the child and his lin-
guistic, social or emotional environments."
(Karmiloff-Smith 1979 : 2)   To a certain extent
this is the basis of Bruner's (1975 [b]) discussion
of the ontogenesis of speech acts, where he suggests
that linguistic concepts are first realized in
action - most importantly in joint activity.
Bruner's work on language development constitutes
an influential synthesis of speech act theory and a
cognitive approach to language development, and will
be referred to again later.

One of the first members of the Genevan School to
explore the implications of Piagetian theory for an
explanation of language development was Sinclair,
who focused initially on early syntactic develop-
ment.   As an example of this work, she describes a
study (Sinclair-de Zwart 1973) in which linguistic
problems of a syntactic nature were put to young
children.   The subjects, aged 2;6 to 7 years, were
presented with utterances made up of either two
nouns and a verb in the infinitive, or two verbs and
a noun (in different orders and with different types
of verbs and nouns):

    NVN : boy-push-girl ; girl-push-boy
    NNV : boy-girl-push ; girl-boy-push
    VNN : push-boy-girl ; push-girl-boy

The children were required to guess the meanings of these utterances, and to illustrate or act out their meanings with toys. It was Sinclair's belief that during the first year of life a set of universal cognitive structures is built up, and that this provides the child with enough assumptions about the nature of human language for his first efforts in communicating with language.

> In this sense one could indeed, to quote
> Slobin (1971), take Piaget as a handbook
> for psycholinguistic development.
> (Sinclair-de Zwart 1973 : 11)

The study described above was designed to elicit the children's use of this set of basic assumptions to guess the meaning of the utterances. Sinclair suggests that since the children were thereby exposed to a "language", of which the words were familiar but the syntactial rules unknown, they would select certain solutions on the basis of their initial set of hypotheses about the structure of human language.

The strategies used by the children to reach particular solutions are interpreted in terms of developmental tendencies. While the idea of hypotheses should be noted, the most interesting aspect of Sinclair's view (as far as the present study is concerned), is not her notion of a set of basic assumptions, or "universal base" which is

constructed during the first one and a half years of life through the child's actions on reality. This early period is not of direct interest here, since Sinclair asserts that during this time it is very unlikely that learning occurs by means of some form of inductive generalization from presented linguistic data. What is of particular interest here is her suggestion that the child whose utterances are composed of more than three elements must be supposed to be making use of some type of inductive procedure to enable her to grasp the grammatical forms and structures of the particular language to which she is exposed.

Sinclair sees Piagetian theory as being useful on two counts: firstly in the search for explanatory adequacy in an attempt "to define the child's initial set of linguistic universals" (Sinclair-de Zwart 1973 : 13), and secondly in looking at problems of later language development. She makes it clear that she believes Piagetian theory to be of greatest use in the first endeavour. However, it may be argued that there is considerable explanatory potential for later language development in the second "Piagetian postulate" which she puts forward, that is, the idea that:

> higher level knowledge involves a recons-
> truction of already acquired concepts and
> patterns, and thus shows a formation process
> isomorphic to that by which earlier knowledge
> was acquired.
> (Sinclair-de Zwart 1973 : 24)

In discussing the relevance of Piaget's early work for a semantic approach to language acquisition, Sinclair (1978 [b]) refers to Le Language et la Pensée Chez l'Enfant (Piaget 1923, in Sinclair 1978). She points out that according to Piaget, questions enable the child to communicate what he thinks about reality and what he would like to know about it. Sinclair refers to the "dual aspect of language, both as an object to be known and as a means for expressing knowledge" (1978 : 13) and notes that this is the assumption underlying Klima and Bellugi's (1966) study of questions. These theorists see questions as part of the "object to be known" aspect of language, where language is viewed as an object with properties and rules to be infer-red by the child from his experience of it.

Sinclair (1978 [b]) also believes that Piaget's early work contains some important observations in terms of the current growth of interest in semantic development, and she gives various examples inclu-ding the following:

The teacher and child are looking at a pigeon.

Child: "If you kill him at that bit of his wing, does he die?"

(Piaget 1923 in Sinclair 1978)

The semantic anomalies in such questions are, according to Piaget, indicative of the child's presuppositions or assumptions about reality.

While this work is concerned mainly with children from the age of about six years, it does have relevance for younger children from two and a half years of age, since this is when Piaget sees the child as beginning "to distinguish immediate reality from something that precedes and underlies this reality" (Sinclair 1978 : 12). According to Piaget, even the child's initial types of question (before two and a half or three years) foreshadow two complementary aspects of the older child's thought: the search for explanation, and a feeling for implication (later to develop into logical thinking). Piaget draws a direct link between questions and "the basic concepts that preside over the progress of human knowledge" (Sinclair 1978 : 12). As previously pointed out, Piaget (1959) (following Claparède 1916) sees these basic concepts as neither innate nor purely the result of experience, but rather as constructed out of early sensorimotor activity by means of biologically based self-regulation. Claparède, who had a considerable

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influence on Piaget's thought, suggested that as man came to see his actions as inadequate, so his thought began to encompass concepts of causality, time, necessity etc. Piaget's view of the development of questions in the child emerging from the restrictions of sensorimotor thought, is analogous to these ideas of Claparède's. (Sinclair 1978 [b])

Some of Sinclair's most recent work (Verba, Stamback and Sinclair 1982) looks at the importance of social exchange amongst a group of children for the process of learning by acting on the world. It was felt that in taking up the action of one of the members of the group, and transforming it into a complex sequence of related activities, the children were not passively copying the initial action, but rather showing what Sinclair et al. term "important capacities of abstraction" - what was referred to by Piaget as "reflective abstraction". While this work again focuses on the age-group just below that with which the present study is concerned, the view of the child as performing some kind of analysis on the actions of others is of relevance.

While there are various details of the work described so far which will be useful for an analysis of the data obtained in the present study, the emphasis has been on the general way in which the child is

seen as an active participant in the language learn-
ing process.   Karmiloff-Smith (1979) cautions
against seeing sensorimotor action schemes as suf-
ficient explanation for the emergence of language.
Similarly it should be stressed that the analogy
between the way sensorimotor knowledge is acquired,
and the way the young child manipulates her verbal
environment in the search for linguistic and con-
ceptual knowledge, is by no means a comprehensive
one.

There are two issues central to the present study
which would clearly be neglected by a simple focus
on this analogy.   These are, a consideration of
individual differences in the mechanisms of language
development, and the importance of the social envi-
ronment or communicative context.   There is no
doubt that the focus of approaches such as
Sinclair's, is on universal cognitive structures or
mechanisms underlying language development.   This
is only to be expected of a psycholinguistic view
based so closely on Piaget's theory of cognitive
development.   However there is a growing emphasis
on group and individual differences in cognitive
development, (e.g. Baron's [1978] paper on intelli-
gence and general strategies) and it is clearly
important for any theory of language development to
allow for the investigation of this possibility.

Although she does not mention individual differences as one of them, Sinclair (1973) herself points to the rapidly increasing number and complexity of factors which contribute to language development past the two-element utterance stage. In this respect her reluctance to advocate the explanatory potential of Piagetian theory past this stage seems reasonable.

As far as the social environment and communicative context are concerned, it has already been mentioned above that Karmiloff-Smith does not feel that Piaget's epistemology excludes these as important factors in language development. Karmiloff-Smith (1979) sees prespeech communication as a process which complements and interacts with prespeech cognition and which develops along with it during infancy. While Piaget (1971 cited in Karmiloff-Smith 1979) suggests common underlying mechanisms for these processes, Karmiloff-Smith allows for the possibility that an understanding of language development may require looking at what makes these processes distinct from each other. She even suggests that there may be individual differences amongst children in their reliance on one or the other process (although clearly both must be in operation for language to develop).

So Karmiloff-Smith can be seen as supplementing and
building out from Piaget's theory in several impor-
tant respects.   Apart from her emphasis on pre-
speech communication and the consideration of
individual differences mentioned above, Karmiloff-
Smith (1979) also suggests that Piagetian theory
neglects the potential of the following character-
istics of language:

   (i)   Its constructive role in development.

  (ii)   Its capacity for receiving the child's
         spontaneous cognitive attention.
         Karmiloff-Smith (1979 : 2) points out that
         language is usefully to be considered as a
         "problem-space per se irrespective of
         the specific content of children's utterances
         and of their semantic intentions".

 (iii)   Its function as a relevant experimental
         variable in the performance of cognitive
         tasks.

The experimental work reported by Karmiloff-Smith
(1979) sets out to investigate these aspects of
language by looking at the functions of certain
linguistic categories in adult speech, and how these
are seen by children of various ages.   In this
investigation, Karmiloff-Smith takes a functional
approach, and emphasizes the relevance of Searle's

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theory of speech acts (to be outlined in Chapter
Three). Clearly Piaget did seriously neglect these
aspects of language and language development, and
most of the work done in this field has far fewer
direct links to Piagetian theory than that discussed
so far.

The above review should give some indication of the
potential and inadequacies of Piagetian theory for
an understanding of the mechanisms by which the
child may develop her linguistic knowledge and
ability. It should be mentioned that it is not
appropriate to the present study to review the
relationship between cognitive development and child
language in general. As Campbell (1979) points
out, this is currently a very speculative field.

Reviews of the work in this field can be found in
Bowerman (1976) and Cromer (1974, 1976). Other
influential theorists in this area include
Macnamara (e.g. Macnamara 1977), H.H. Clark and
E.V. Clark (Clark and Clark 1977, E.V. Clark 1973,
1977, H.H. Clark 1973). The two aspects of this
problem which do need to be developed here are a
framework for viewing the young child as an active
hypothesis-tester, and different approaches to se-
mantic and conceptual development. The latter will
be reviewed in Chapter Four.

2.3 WHAT MOTIVATES THE QUEST FOR LINGUISTIC KNOWLEDGE?

To continue, then, with developing a view of the child as formulating and testing hypotheses about language, one of the most fundamental questions, which has so far only been approached indirectly, is what motivates the young child to work towards greater linguistic knowledge and ability.

This is in itself an extremely complex problem which is not particularly illuminated by such arguments as Donaldson's:

> ... there is a fundamental human urge to
> be effective, competent and independent,
> to understand the world and to act with
> skill.
> (Donaldson 1978 : 113)

Nevertheless some version of this argument is essential if one wishes to reject the view of the child as subject to simple stimulus-response mechanisms or as reacting according to a pattern of reinforcements founded in basic physiological "drives". There is in fact considerable evidence for the view expressed by Donaldson, and even infants as young as three to four months appear to show signs of pleasure at recognizing or ("understanding") certain objects or events (Flavell 1977).

It appears to be very rewarding for young children, as well as adults, to reach an understanding of something, especially after having had to put a

considerable amount of cognitive effort into doing

so. Success in achieving such cognitive mastery is

characteristically accompanied by signs of tension

release and pleasure:

> ... part of the motivation intrinsic to
> cognitive functioning is the motivation
> to master problematic situations, to be
> effective with respect to one's environ-
> ment, to be competent. It is widely
> believed that this aspiration toward
> mastery, effectiveness and competence
> is an important part of the cognitive
> system's power source.
> (Flavell 1977 : 22)

When Flavell (1977) turns to discussing language

development in particular, he comments on the "truly

extraordinary" linguistic progress which takes place

during the early childhood period. He emphasizes

the role of the child's increasing linguistic

ability in learning about the world from others,

part of which is the ability to transmit information

to others, thereby eliciting corrective feedback

about the accuracy of her beliefs and ideas. This

view of the young child as using language to

"receive, transmit and otherwise manipulate informa-

tion about the world" (Flavell 1977 : 63) is central

to the present study which regarded the child as

doing so not only in the pursuit of knowledge in

general, but also, more particularly, in the pursuit

of knowledge about language itself.

2.4 AN INFORMATION-PROCESSING PERSPECTIVE

It is in an attempt to understand how this might
take place (rather than why), that an information-
processing perspective becomes particularly useful.
The most important concept from which to begin the
construction of such a framework is surely still
that of the TOTE (Test-Operate-Test-Exit) unit pro-
posed by Miller, Galanter and Pribram in 1960.
As Posner (1973) points out, some form of sequential
organization of mental operations is crucial to any
problem-solving process, and according to the TOTE
concept, this is done by matching a present input
against a goal state.   If the match is imperfect,
an operation will be performed to attempt to achieve
a representation which does match that of the goal.
In the process of solving any type of cognitive
problem (everyday or formalized), the sequence of
TOTE units involved is said to form a plan.   The
well-known example given by Miller et al. is the
plan for hammering in a nail.

As far as the study of language development is con-
cerned, Chomsky (Miller and Chomsky 1963) accepts
that language comprehension, production and acqui-
sition could in principle be described in terms of
the TOTE framework.   Various other investigators of
language development have actually used the TOTE

formalism; for example Gilbert, who states the
assumption that "TOTE hierarchies are required to be
able to account for even moderately complex
behaviour" (Gilbert 1978 : 42). The introduction
of the TOTE unit may be seen as a major advance in
the analysis of intentional behaviour. For in
applying cybernetic concepts to this analysis it was
shown that cognitive models need not be hampered by
the problem of consciousness (Greenfield 1980).

Information-processing analyses of the organization
of thought and behaviour have become much more
complex since 1960, and the concept of TOTE hierar-
chies is often replaced by some form of network
analysis. Theorists such as Klahr and Wallace
(1976) have drawn up sophisticated information-
processing models of cognitive development, but the
focus of such models tends to be on attention,
perception and memory, rather than on language.

Any attempt to understand how cognitive plans may be
operating in testing hypotheses about language, must
consider the role of memory in this activity. Any
plan will put a load on memory and even when a well
thought-out plan is represented in sequential form
in long-term memory, difficulty may still be experi-
enced in representing it in "active memory" (Posner
1973 : 162). As far as language development is
concerned, G.M. Olson (1973) suggests that there are

developmental differences in language acquisition strategies and that these differences may be related to developmental changes affecting both short-term and long-term memory, although he chooses to focus on short-term or immediate memory.

There has recently been a considerable amount of dissatisfaction with the typical modal or multistore model of memory as put forward by theorists such as Atkinson and Shiffrin (1968) and Waugh and Norman (1965). One of the primary objections to this model is its rigid distinction between short-term and long-term memory, and one of the most influential alternatives to this dichotomy is the concept of working memory put forward by Baddeley (Baddeley and Hitch 1974, Baddeley 1976). Working memory (or active memory) receives input in the form of incoming information from the senses, as well as information activated from long-term memory. It is therefore within working memory that cognitive tasks such as recognition and hypothesis-testing are said to be carried out. In terms of the TOTE concept, it would be here that the representation of a present stimulus would be matched against a representation of the goal state, and here that information would be manipulated to guide the hypothesis-testing process proposed in the present study.

Case (1980), in discussing the underlying mechanisms of intellectual development, refers to the connection between working memory and the development of language. He suggests that in order for a child to produce an utterance commanding (or requesting) an adult to do something, it must be possible for the necessary schemes to be assembled in working memory simultaneously. According to Case, working memory will be inadequate for this task until towards the end of the sensorimotor period. This argument is similar to that put forward by Bates (1976 in Case 1980), in discussing the transition from sensorimotor to symbolic thought. Here the imperative use of language, or the use of language to achieve an end, is said to depend on the child's realizing that one object can be used to obtain another - a realization which both Bates and Case believe is attained just prior to the transition from sensorimotor to symbolic thought.

2.5 A STUDY OF LANGUAGE DEVELOPMENT OF PARTICULAR IMPORTANCE FOR THE PRESENT STUDY : NELSON (1973)

In Case's work, as well as in much of the other work discussed so far, one can see clearly the integration of the information-processing and Piagetian (or Neo-Piagetian) approaches. However perhaps the best example of such an integration - or at least the most relevant in this context - is Nelson's work

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on "Structure and Strategy in Learning to Talk"
(Nelson 1973).   In fact Nelson's work is much more
than an integration of these two approaches, as it
incorporates both aspects previously mentioned as
lacking in the Piagetian tradition, that is, a
concern with individual differences, and with the
social context in which the child develops language.

In this study Nelson identifies five strategies
which children use in acquiring first words, and
examines the effectiveness of each.   As a framework
for the interpretation of her findings she presents
what she describes as an interaction model inter-
relating the child's preverbal concepts and acqui-
sition strategies, and parental acceptance patterns.

Like the present study, Nelson's work views the
child as a problem solver, although her focus is on
the acquisition of first words during the second
year of life, rather than on the expansion of lin-
guistic knowledge during the third and fourth years.
Also shared by the present study is Nelson's concern
with language learning in the context of the child's
development and environment.   More specifically, in
seeing the child as an active information processor,
model builder and problem solver, Nelson's assump-
tions detailed here are shared by the present
author:

(i) The structures and processes relating to pre-
verbal development are not distinct from
those involved in later linguistic develop-
ment, since development as a whole is seen
as a continuous process.

(ii) The child is actively involved in processing
information from the environment, encoding
this information in terms of perceptual or
conceptual features, and storing it in memory
over the short or long term.

(iii) The child organizes this encoded information
into perceptual-conceptual constructs
(schemata, concepts or constructs).

(iv) "The human organism acts on the basis of a
hypothetical model of the world based on
expectations derived from his constructions
at any given point in time. This model is
built up over time, is constantly tested, and
constantly changes and develops. Strategies
of information processing and hypothesis-
testing are the basic processes by which the
child makes contact with reality and brings
his world view into harmony with the physical
and social world around him."
(Nelson 1973 : 3)

(v) Since cognitive functions are interrelated
and therefore cannot be understood in isola-
tion, language development must be studied in
the context of the child's knowledge of his
physical and social world.

Nelson outlines a four-component process model (see
Figure 2), where parental selection mechanisms
interact with the child's learning or processing
mechanisms in working towards the goal of matching
the child's cognitive structures with what she terms
"reality structures".

A Child's Cognitive Structure	B Child's Processing Strategies	C Adult's Selection Strategies	D Structure of the Environment (Physical, Social and Linguistic)
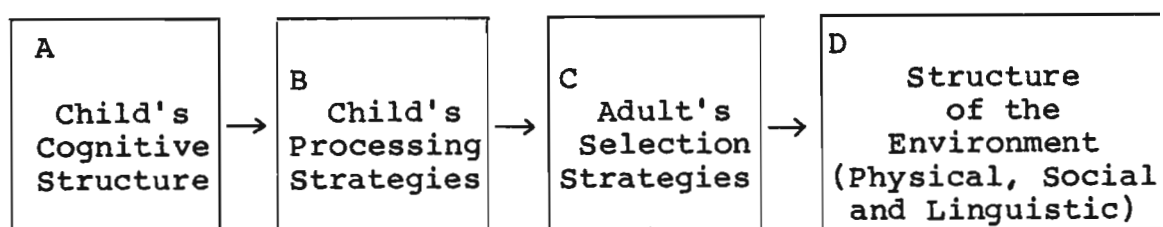
Figure 2:   Components of the interaction system
            (Nelson 1973 : 4)

The distinction between strategies for acquisition
of language and those for the processing of language
is an important one.   Nelson names production,
comprehension, imitation, repetition (or self-
imitation) and question asking as the five strate-
gies under study, but specifically states that this
is not intended as an exhaustive list.

While comprehension (essentially a strategy of
selective attention) does not fall within the scope
of the present study, the other four strategy types
clearly do.   In particular the concept of produc-
tion as a language learning strategy covers the
various forms of hypothesis-testing suggested in
Part II.   Nelson sees this as a testing or experi-
mental strategy where the child's conceptions of

words or groups of words are tested for acceptance or rejection by others, i.e. in the context of interaction.

An important part of Nelson's study is her evaluation of the effectiveness of different strategies used by child and parent, emphasizing the importance of recognizing individual differences in both, and their implications for the development of language in the child. In order to integrate her findings, Nelson (1973) introduces an interaction model which is based on the model outlined in Figure 2 above (see Figure 3).

In this model both the child's strategies and those of the parents are regarded as interpretative mechanisms. At any particular time both the child's cognitive structure and the strategies which the parents are using at that time, will act on the child's strategies, which in turn serve to interpret this cognitive structure and the parental strategies. Reorganization resulting in the position at T_2 comes about through feedback on this initial interchange and the new cognitive structure (2) gives rise to revised child strategies (2). This revised set of child strategies is then acted on by parental selection strategies (2), resulting in T_3.
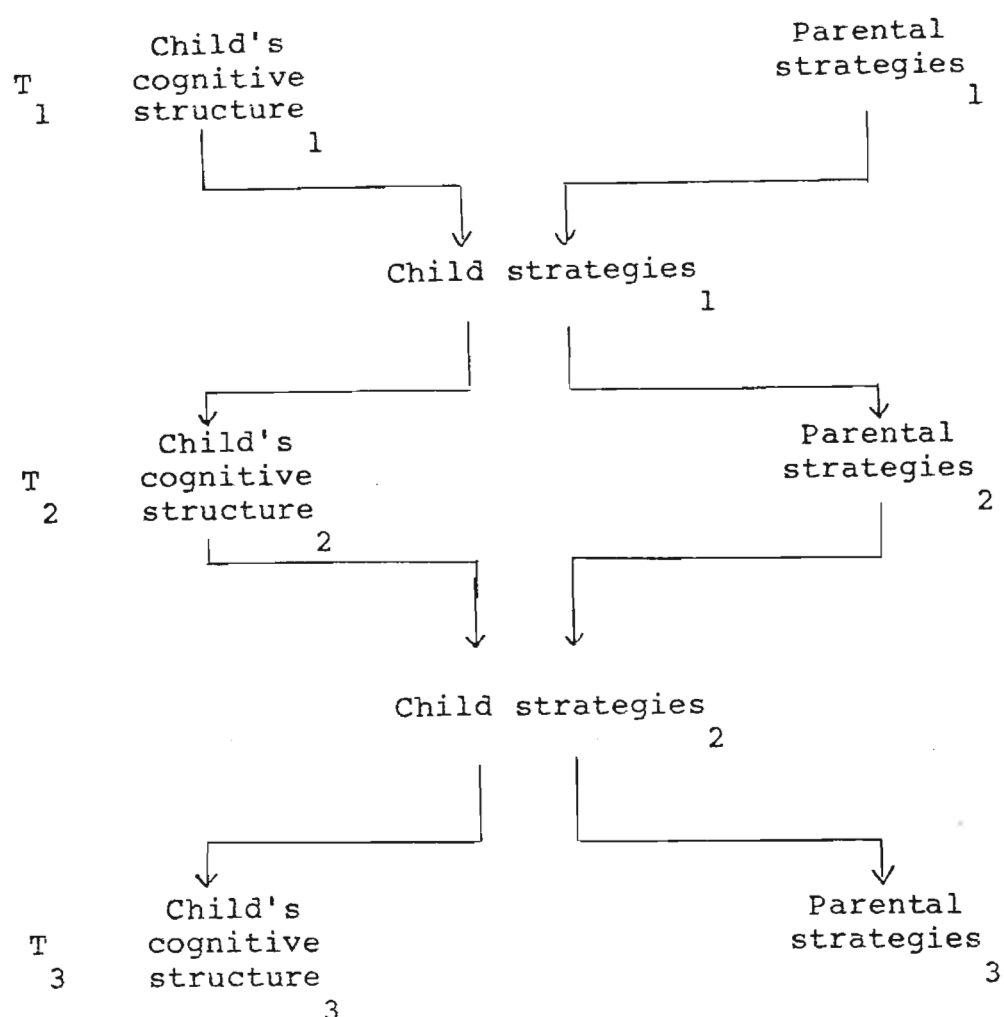
Figure 3: Schematic model of the interactive
language-learning process
(Nelson 1973 : 96)

Nelson (1973) applies this model to the explanation
of how an initial productive vocabulary may be con-
structed, but the main relevance of the model for
the present study lies in its emphasis on the
interactive nature of the language-learning process.
While this aspect was not considered in detail in
the present study, its importance for a full under-
standing of the dynamics of language development
cannot be overemphasized.

2.6   WHAT IS ATTRIBUTED TO THE CHILD

It is important to examine carefully just what is
being attributed to a child when it is suggested
that he uses various strategies to learn more about
language. For this reason the concept of strategy
itself will be discussed in this section, as well as
the concepts of intentionality and metalinguistic
awareness. Finally a distinction will be made
between the desire to communicate and the desire for
mastery of conceptual and linguistic knowledge.

2.6.1   STRATEGY

The above outline of Nelson's work shows clearly her
reliance on the notion of "strategy", a term which
is also used by Horgan, Snyder-McLean and McLean,
and many other theorists interested in the active
role played by the child in the language learning
process.   In fact Cromer (1976) suggests that this
term came into regular use in language development
studies as a direct result of the growing trend (in
the 1960s and early 1970s) away from the view of
language acquisition as dependent on passive res-
ponding to differential frequencies of linguistic
input and reinforcement.

Cromer (1976) gives a comprehensive review of
studies investigating developmental strategies for

language, but it soon becomes clear that most of the work has dealt with strategies for interpreting incoming linguistic information. This is quite a different focus from that of the present study, as well as much of Nelson's work, both of which are more concerned with what Snyder-McLean and McLean call information-gathering strategies. However the work reviewed by Cromer and the present study are both concerned with the active learning of language, and it is interesting to look at Cromer's critical evaluation of the usefulness of the concept of strategy for an understanding of this process. He concludes that it has been useful in various respects, for example bringing to the fore the importance of individual differences and of underlying cognitive operations in language development. However his final conclusion is that "the concept of language acquisition strategies has told us much - except how the child acquires language" (Cromer 1976 : 353).

This rather bleak conclusion suggests that the concept of strategy is perhaps not as neat a description of various forms of "observed developmental language behaviour" (Cromer 1976), as it might at first appear. In order to evaluate the notion of strategy more clearly it may be useful to

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look at various definitions, beginning with Cromer's

own rather terse statement:

> A strategy describes regularities observed
> in decision-making.
> (Cromer 1976 : 305)

> A strategy is a method of controlling and
> manipulating information. It may reflect
> a genetically based predisposition, or it
> may be learned in the course of organism-
> environment interaction.
> (Nelson 1973 : 35)

> A strategy refers to a pattern of decisions
> in the acquisition, retention, and utilization
> of information that serves to meet certain
> objectives, i.e., to insure certain forms of
> outcome and to insure against certain others.
> (Bruner, Goodnow and Austin 1956 : 54-55)

Bruner, Goodnow and Austin (1956) also refer to

strategies as rules or plans for choosing steps in

problem solving, and suggest that they may be iden-

tified as regularities in decision-making.

> Whenever cognitively oriented psychologists
> search for what they call strategies of
> language learning and retention, they often
> could just as well be using the term learning
> set.
> (Moerk 1977 : 18)

Bever (1970) looks at three aspects of cognition:

basic capacities, behavioural strategies and epis-

temological structures, and suggests that:

> In both perceptual and productive behaviour,
> children and adults utilize many systems of
> behavioural strategies to short-cut the
> internal structure implied by the regulari-
> ties in their behaviour.
> (Bever 1970 : 282)

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Bever is also concerned with the acquisition of strategies for perceiving and producing sentences, and identifies the following:

strategies of speech perception

semantic strategies

sequential labelling strategies

lexical ordering strategy

Clearly the concept of strategy has broadened in scope since its use by Bruner, Goodnow and Austin (1956) in the explanation of formalized problem solving, and with this appears to have come a lack of precision in its definition. Many authors no longer attempt to define the term at all, or more importantly, to stipulate the sense in which they are using it:

> ... the concept of strategy is a particularly cogent one in the study of cognitive and perceptual development, but ... the hypothesis of 'strategy' as an intervening construct demands strict attention to method and theory.
> (Sharratt 1980)

For the purposes of the present study, the most important aspect of the concept is the distinction between strategies and the fixed aspects of cognition (Sharratt 1980). This distinction may be elaborated by reference to Atkinson and Shiffrin's (1968) modal model of memory, where the structural features of episodic memory are distinguished from its control processes. Structural (or fixed)

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aspects of cognition are those information-
processing sequences which are relatively stable and
outside the voluntary control of the individual.
Control processes, on the other hand, are selected
and employed by the individual on the basis of his
interpretation of his current situation and its
demands (Lachman, Lachman and Butterfield 1979).

These voluntary control processes are more generally
referred to as cognitive "strategies". Since
the concept of strategy entails this distinction
between the relatively fixed and the more dynamic
aspects of cognition, it provides a useful tool for
understanding individual differences in cognitive
development and specifically in the way information
is controlled and manipulated to facilitate language
development.

As far as language development is concerned, the
child may use strategies for processing incoming
linguistic information (comprehension strategies)
and strategies for using language (production
strategies). As mentioned above in discussing
Cromer's (1976) review, the focus of the present
study was on the latter type of strategy. The use
of this type of strategy to test hypotheses about
language has certain similarities to the more formal
types of hypothesis-testing investigated by such

theorists as Bruner, Goodnow and Austin (1956) and Wason and Johnson-Laird (e.g. Johnson-Laird and Wason 1977, Johnson-Laird 1972, Wason 1968). These studies typically involve adult subjects in a problem-solving task (usually a concept identification task), where the subjects verbalize their hypotheses and modify them on the basis of feedback from the investigator or the task environment.

The terms "hypothesis", "strategy" and "control process" all have definite connotations of some form of conscious awareness on the part of the individual entertaining those hypotheses, or utilizing certain strategies. The literature (and this review) is full of such connotations, for example in the statement that:

> Children play an active role in the acquisition of meaning by building plausible interpretations for words and utterances from what they know and from cues in the immediate context. In doing this, they appear to start with two assumptions about the function and content of language ...
> (Clark and Clark 1977)

Clark and Clark go on to suggest that children use their existing conceptual knowledge of the world to form hypotheses about particular word meanings. From these hypotheses they derive strategies for using and understanding the words. On the basis of feedback from others, a strategy or "rule" will be adjusted until it fits into the adult model.

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The above example is typical of the literature in its connotations of the young child, not only as actively participating in her own language development, but as somehow deliberately plotting each step. It may well be that this manner of speaking is simply a result of the liberation of developmental studies from the strictures of "objective" terminology and operational definitions of behaviour. Certainly an approach which takes account of the role of intentions and the interpretative value of reasons in the study of behaviour has more to offer than a "positivistic", "causal" psychology which fails to do so (Greenfield 1980). However in rejecting operational definitions one re-introduces the question of conscious awareness (as mentioned above in relation to the concept of strategy), and the related problem of intentionality. It is a short step from here to the "morass" which Bruner (1975 : 262) suggests will arise from trying to establish whether something is <u>consciously</u> intended.

2.6.2 <u>INTENTIONS</u>

The problem of the attribution of intentions is an extremely complex philosophical issue with important implications for the psychology of action and the psychology of language. The issue of conscious awareness and intentionality is a particularly

difficult one for the study of language development, as Sinclair (1978 [a]) makes clear in her discussion of conceptualization and awareness in Piaget's theory and its relevance to the child's conception of language. The Piagetian position on awareness which is outlined by Sinclair (1980) implies that, since utterances are seen as belonging to the category of intentional acts, the aim and results of any utterance should be conscious. According to Sinclair, the difficulty here lies in identifying the aims and results of speech acts, especially in the case of young children. Her argument rests on the idea that verbal activity is different in various important ways from other forms of intelligent activity (one such difference is the lack of an obvious boundary between subject and object in verbal activity).

Greenfield (1980) examines in some depth the concept of intentionality as it relates to early child language. Specifically she is concerned with the attempt to operationalize intention in terms of an analysis of conversational discourse in particular, and the sequential aspect of interaction behaviour in general.

In the search for an operational definition of intention Greenfield turns to Searle, and to Bruner, who suggest two similar candidates (these appear to

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be general references, as Greenfield does not note

specific dates):

(i)   directedness (Searle) or "sustained direction

of behaviour during deployment of means"

(Bruner)

(ii)   presentation or representation of conditions

of satisfaction (Searle) or "stop order

defined by an end state" (Bruner).

Perhaps most useful for an understanding of how the

concept of intention can be applied to very young

children, is the notion of "intention-in-action",

proposed by Searle and taken up by Greenfield

(1980).   In most models of intention, as in the

TOTE model, the individual has some representation

of the conditions of satisfaction to work towards

and to match the present outcome against.   The

implication of intention-in-action is that the

individual need not have any such explicit repre-

sentation;   rather "the conditions of satisfaction

are implicitly present during the intentional

action" Greenfield 1980 : 262).   Whereas the adult

is capable of both prior intention and intention-

in-action, only the latter can be attributed to the

sensorimotor infant.   In this way it may be pos-

sible to use the concept of intention in the attempt

to understand the young child's language
development.

One option for the present study might have been to
argue that the notion of intention was an unneces-
sary complication in attributing the use of verbal
information-gathering strategies to young children.
The notions of directedness and conditions of satis-
faction could have been adopted simply as indices of
the active nature of the child's involvement in the
language learning process, which might then have
been explained simply in terms of plans or purpose-
ful behaviour. It may well be that the question of
"conscious intent" and when it can first be attri-
buted to the child, is not a useful one to ask.
Consciousness and intention are "opaque" concepts,
and a more appropriate question may be that of how
communicative functions are shaped and fulfilled.
It even seems that as one studies how specific
communicative functions develop, the question of
conscious intent and when it first arises, falls
away (Bruner 1975 [a]).

Nevertheless, the position taken by the present
author did not depend on setting aside the notion of
intention, but rather on making a clear distinction
between intention and consciousness. This distinc-
tion is stressed by Searle (1983 : 2) who suggests

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that "Intentionality is not the same as conscious-
ness".   He defines Intentionality in terms of
directedness, and notes that intentions are simply
one form of Intentionality, as is meaning.
(Beliefs, hopes and fears may be just as directed as
intentions.)

In the present study, then, the notion of conscious
intention was considered misleading, in the sense
that consciousness and Intentionality overlap only
partially (Searle 1983).   The notion of intention
(as an aspect of Intentionality) was, however,
retained, and was considered to be a useful con-
ceptual tool for investigating hypothesis-testing
and the use of verbal information-gathering
strategies by the young child.

2.6.3   METALINGUISTIC AWARENESS

A third "problem" concept which is closely related
to the issues of strategy use and intentionality is
that of metalinguistic awareness.   Like the term
"strategy", "metalinguistic" is one which is seen
more and more frequently in the language development
literature (for example Horgan, and Snyder-McLean
and McLean, see Chapter One above).   As with
"strategy", "metalinguistic" appears to be used in
various different senses, often without clear
definition.   Even where definition is provided, it

is clear that different authors have very different

views on the scope of this concept:

> [The development of metalinguistic aware-
> ness is] the development of children's
> ability to reflect on language as an object.
> (Smith and Tager-Flusberg 1982 : 449)
>
> [Metalinguistic awareness is the awareness]
> of language as something that can be turned
> around on itself, played and joked with,
> and used as a tool in lying, in reasoning,
> and in memory.
> (de Villiers and de Villiers 1978 : 165)
>
> [Metalinguistics is] a term used by some
> linguists for the study of language in
> relation to other aspects of cultural
> behaviour.
> (Crystal 1977, quoted in Kreckel 1981 : 129)
>
> In general, the metalinguistic ability of
> native speakers pertains to their capacity
> to report what is accomplished by context-
> dependent speech.
> (Kreckel 1981 : 129)
>
> For a start let us suppose that metalingui-
> stic awareness includes the ability to
> think about language and comment on it.
> (Read 1978 : 65)

Hakes (1980) sees metalinguistic abilities as those

abilities which make possible "linguistic intui-

tions", that is, the reflection on and evaluation of

utterances.

Perhaps most indicative of the differences in the

various versions of the metalinguistic concept are

the different estimates of the age at which such

abilities are first evident. Slobin (1978) sees

the two-year-old's self-corrections and rephrasings

of utterances as indicative of one "level" of

metalinguistic awareness, whereas de Villiers and de Villiers (1978) are reluctant to interpret apparent "awareness" of language as truly metalinguistic much before the age of five years. They caution that the child may appear to be using "rules" for the comprehension and production of speech for some months, or possibly years, before metalinguistic awareness can actually be said to be present.

The question seems to be whether one regards metalinguistic ability as developing along a continuum from the early days of language use, or whether one sees it as a qualitatively new ability which only appears at a later stage. Slobin (1978), representing the first position, sees the development of the individual's awareness of language as part of her overall development of consciousness and self-consciousness, and suggests different levels of metalinguistic ability, from "the dimly conscious or preconscious speech monitoring which underlies self-correction, to the concentrated, analytic work of the linguist." (Slobin 1978 : 45)

Again one could argue that, at the first level with which the present study would be most concerned, the term "metalinguistic" could prove to be a complicating factor rather than a useful conceptual tool.

The distinction between the concepts of meta-cognitive awareness and cognitive strategy is often blurred. Recognition of this probably underlies de Villiers and de Villiers' (1978) "caution" expressed above. Flavell, who has been largely responsible for the growth of interest in meta-cognition in general, stresses the difference between cognitive strategies which he sees as being brought into play in order to make cognitive progress, and metacognitive strategies which may monitor that progress (Flavell 1979). However he also acknowledges that strategies may take on either role, depending on the context and purpose of their use.

Clearly this is by no means a simple concept to apply in the study of later language development, at an age when there is general agreement as to its validity, and one should be extremely wary of using it to describe the "dimly conscious or preconscious speech monitoring" of the young child. The important point is the fairly general acknowledgment of some form of language awareness and speech monitoring during the third and fourth years of life.

2.6.4 THE DESIRE TO COMMUNICATE AND THE DESIRE FOR MASTERY OF CONCEPTUAL AND LINGUISTIC KNOWLEDGE

In seeking to clarify what is being attributed to the child, another distinction suggested above was that between the desire to communicate and the desire for mastery of conceptual and linguistic knowledge. This relates to the controversial issue of whether language evolved primarily to enable humans to communicate with each other, or to augment human intellectual capacity. As far as the ontogenesis of language in the child is concerned, de Villiers and de Villiers (1978) believe that these two functions of language may be inseparable. So far the focus of this discussion has been primarily on establishing a cognitive framework for the present study. It is now high time to turn to the social or communicative context of language development.

CHAPTER THREE

THE COMMUNICATIVE CONTEXT OF LANGUAGE DEVELOPMENT

3.1 INTRODUCTION

It was pointed out above that recent trends in the study of language development include an interest in the social prerequisites for language acquisition, as well as in the cognitive prerequisites (Bates 1979). This reflects a general growth of interest in the social context of language which may be seen as arising from two directions: an interest in language on the part of theorists concerned with social psychology, and a recognition of the importance of the social context on the part of cognitive theorists and psycholinguists.

Language is seen as one aspect of the broader phenomenon of communication, and the development of language as dependent on the prior development of communicative ability in the infant (e.g. Bruner 1975, Lock 1980). The unit of analysis is most commonly the mother/child dyad, and the most frequently used analytic framework is that of Speech Act Theory (Austin 1962, Searle 1969).

Here too individuals are seen as agents, acting on the world with understanding, in such a way as to modify the environment according to their needs and interests. Meaning is viewed as a practical

activity and is therefore something that children learn to do. The mother interprets the infant's initially innately organized activity as having meaning and acts accordingly. The infant learns that certain of his movements elicit particular responses in his mother (caretakers) and in this way comes to be capable of actions as opposed to sequences of (biologically controlled) movements (Shotter 1977).

This focus on meaning as something people do, points to the issue of the function of communication. The work of Karmiloff-Smith (1979), referred to in Chapter Two, is conducted within a functional approach to language, as is that of many other investigators, for example Halliday (1975) and McShane (1980).

3.2   PRAGMATICS

The study of the effects of context on the use and interpretation of language is often referred to under the heading of "pragmatics", although as Levinson (1983) points out, this is a very difficult term to define accurately.

Initially seen as an aspect of semiotics (the science of signs), along with syntactics and semantics, pragmatics was defined as the study of the

relation of signs to interpreters (Morris 1938, quoted in Levinson 1983). However today there are many different definitions, none of them conclusive, and to describe pragmatics as the study of language usage is a deceptive simplification (Levinson 1983). Perhaps one useful distinction which can be made among the different approaches to pragmatics relates to those theorists who regard this field as one of several distinct and separable levels of language, as opposed to those who see it as the most important and determining aspect of language (the function-alist approach). Alternatively, one may take a middle line, and study the influence of pragmatic factors on phonology, morphology, syntax and seman-tics, as well as viewing pragmatics as a field of interest in its own right (Lund and Duchan 1983).

A useful distinction found within pragmatics is that between sentence-meaning and speaker-meaning (or utterance meaning), derived from the philosopher Grice's (1968) notion of non-natural meaning (meaning-nn). This latter type of meaning refers to intentional communication, where:

> S meant-nn z by uttering U if and only if:
>
> (i) S intended U to cause some effect z in recipient H
>
> (ii) S intended (i) to be achieved simply by H recognizing that intention (i).
>
> (in Levinson 1983)

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The implication of this is that communication is a unique type of intentional activity which can be judged as successful or unsuccessful on the basis of whether or not the intention is recognized. The important criterion is that of mutual awareness or knowledge between speaker and hearer, such that both are aware of the speaker's intention, and each is aware that the other has this knowledge. What Levinson refers to as "Grice's essential insight" is that the speaker's meaning need not bear a close relation to the meaning of U, or sentence-meaning. Levinson (1983) advocates that meaning-nn be taken as the scope of meaning for the purpose of defining pragmatics, as this accounts for aspects such as irony, metaphor and indirect implications, while excluding unintended inferences.

In the context of language development and especially in the study of the transition from pre-linguistic to linguistic communication, "pragmatics" most commonly refers to "the directive function of speech through which speakers affect the behaviour of others in trying to carry out their intentions" (Bruner 1978 : 44).

3.3 SPEECH ACT THEORY

The framework which Bruner (1975, 1978) and many others have adapted to the study of this transition

to linguistic communication is based on the uses of communication as speech acts. Searle (1969) suggests that speaking a language is a rule-governed intentional behaviour, and he refers to this behaviour as the performance of speech acts. Furthermore, he asserts that one cannot in principle separate the study of the meanings of sentences from the study of the performances of speech acts, but notes that it is necessary to make a distinction between what a speaker means and what effects he intends to produce in his hearers.

Different types of speech act outlined by Searle (1969) include:

  (i) Utterance acts: the uttering of words, morphemes or sentences.

 (ii) Propositional acts: referring and predicating.

(iii) Illocutionary acts, e.g. stating, questioning, commanding and promising.

In addition he brings in Austin's notion of the perlocutionary act, which refers to the consequences of illocutionary acts, or their effects on the actions, thoughts or beliefs of their hearers. For example, in stating something one might convince one's hearer, where convincing him would constitute the perlocutionary act. Searle emphasizes that the

different types of speech act are not simply acts
which occur simultaneously, nor do they stand in
relation to each other as means to ends.   Rather it
should be seen that in performing an illocutionary
act one will also be performing propositional and
utterance acts and quite probably a perlocutionary
act.   Furthermore, the relation of utterance acts
to propositional and illocutionary acts is likened
to the relation between putting a cross on a ballot
paper and the act of voting (Searle 1969).

The notion of an illocutionary act (or the illocu-
tionary force of an utterance) is a useful one in
evaluating many types of communication.   However
the illocutionary force of an utterance is dependent
on the meaning of the sentence spoken, since it is
through the conventions or rules of language that
the illocutionary effect operates.   For this reason
the notion of the illocutionary act has limited
value in the case of communication between adults
and young children who are just learning to match
intentions and linguistic structures (McShane 1980).
Even in more mature speakers it seems essential to
allow for instances where the speaker's meaning need
not bear a close relation to the sentence-meaning of
his utterance.   After all, there must be other fac-
tors governing understanding in communication, even
if these are "conventions" shared only by two

people, such as a mother and her child, or a pair of twins.

This is certainly likely to be the case where the child is using communicative strategies for gathering further information about language. The cues which enable the hearer to understand and to respond appropriately by providing informative feedback, are likely to be more subtle and complex than an analysis of the conventions of language would convey. This point may be made clearer by considering that such strategies are not likely to be equally effective when used in interaction with familiar and unfamiliar adults. Since the strategies will have developed in interaction between the child and his caretakers, they will probably be most effective in eliciting feedback from those caretakers. This is because the utterances employed in exercising a particular strategy are unlikely to depend entirely on the standard conventions of language to achieve their effect, but may rather do so on the basis of various subtle contextual cues which have come to be understood by both child and caretaker/s as signalling a request for informative feedback. Of course these strategies must be based in some way on linguistic conventions, or they would function only in interaction with the child's caretakers. Nevertheless Grice's (1968) account of meaning does appear

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better able to accommodate the ideas investigated by the present study than Searle's (1969) notion of illocutionary force might do.

3.4 GRICE AND MEANING

The full expression of Grice's schema "U meant (non-naturally) something by uttering x" is "For some audience A, U intended his utterance of x to produce in A some effect (response) E, by means of A's recognition of that intention". This notion that "U intends to produce in A effect E by means of A's recognition of that intention" is abbreviated by Grice to "U M-intends to produce in A effect E", where "M" stands for "meaning" (Grice 1968 : 230).

Grice (1968) revises his earlier account of the M-intended effect for indicative-type and imperative-type utterances as follows:

Imperative-type utterances

M-intended effect:

> that the hearer should intend to do something (with, of course, the ulterior intention on the part of the utterer that the hearer should go on to do the act in question).

Indicative-type utterances

M-intended effect:

> that the hearer should think that the utterer believes something.

(Grice 1968 : 230)

Although this theory of meaning-nn is not usually viewed as linked to Grice's theory of implicature, there is in fact a fundamental connection between the two. For just as the theory of meaning-nn indicates how communication may be successful without relying on linguistic conventions, so it allows for the communication of more than just the information contained in the sentence-meaning (Levinson 1983).

Implicature is described by Lyons (1981) as a notion introduced into the philosophy of language (and adopted by linguistics) to provide a link between the logical notions of implication and entailment, and the more general notion of implication.

Grice's theory of implicature may be seen as a theory concerned with the way people use language (Levinson 1983). Important to this theory is the notion of the efficient co-operative use of language. The general co-operative principle may be expressed as follows:

> make your contribution such as is required,
> at the stage at which it occurs, by the
> accepted purpose or direction of the talk
> exchange in which you are engaged.
> (Grice 1975 : 45)

Grice refers to two types of implicature, conventional and conversational. Conventional implicature depends on something over and above that

which is truth-conditional in the conventional use or meaning of a form or expression, while conversational implicature is based on those (more general) principles regulating the proper conduct of conversation (Lyons 1981).

From his consideration of Grice's notion of conversational implicature, Lyons (1981) goes on to point out the dual role of context: context of situation and contextual information shared between speaker and hearer. By taking account of both of these, one may reach an accurate interpretation of the speaker's utterance. For example, the hearer may decide on the basis of the context of situation that a certain utterance is intended metaphorically. Having decided this, he can then consider the contextual information which he shares with the speaker, and in this way come to understand what is meant by the utterance, over and above its sentence-meaning.

These notions of context of situation and contextual information shared by speaker and hearer are very important for the type of analysis undertaken in the present study. For just as the hearer may take account of both of these to reach an accurate interpretation of the speaker's utterance, so may the investigator of child language who is, after all,

another "hearer". This is particularly true where the investigator participates in the interactions herself, as was the case in the present study. (Where the child's utterance is addressed to someone other than the investigator, the latter's knowledge of the contextual information shared by speaker and hearer will naturally be more limited.)

3.5 PRAGMATICS AND THE STUDY OF LANGUAGE DEVELOPMENT

McShane (1980) prefers Grice's account of meaning in his investigation of language development but the predominant influence in most such studies is that of Speech Act Theory. Various investigators who have based their analysis of the development of communication of Speech Act Theory include Dore (1975) and Bates, Camaioni and Volterra (1975), as well as Bruner, whose work was cited above.

Dore (1975) adopts the speech act as the basic unit of linguistic communication in an attempt to resolve what he refers to as "the holophrase controversy". In the course of this analysis, three "language universals" are proposed: communicative functions, referring expressions and predicating expressions. Dore distinguishes nine types of "primitive speech act": labelling, repeating, answering, requesting (action), requesting (answer), calling, greeting, protesting and practising.

However Dore has been criticised (Griffiths 1979)
for failing to distinguish between utterances which
are communicative (i.e. where the young child
intends to communicate something to an addressee)
and utterances which are simply informative to the
adult hearer.   This distinction is made by Lyons
(1977 cited in Griffiths 1979) and taken up by
Griffiths (1979) to point out the difference between
the acts of "labelling" and "practising", and those
acts which he sees as truly communicative.   It is
essential to bear this distinction in mind in the
attempt to identify verbal strategies for gathering
information about language, as such strategies nece-
ssarily use language in its communicative function.
(It should be noted that "labelling" in this context
appears to be used in a particularly limited sense,
since many acts of labelling are clearly communica-
tive.)

It soon becomes clear that "the application of
speech-act theory to language development is not an
entirely straightforward affair" (McShane 1980) :
25).   McShane's own work draws on various different
approaches, including Searle's speech act theory,
Grice's account of utterer's meaning and Halliday's
theory of language development.

McShane (1980) and Halliday (1975) are both concerned with describing and discussing developmental changes in language over months or years and their categories span the entire range of the child's utterances at various stages of early language development. The aim of the present study, on the other hand, was to investigate a possible mechanism or tool for developmental change, by observing it in operation over a relatively short period, that is at a particular time in the course of language development. Nevertheless, while McShane and Halliday's aims are different from that of the present study, all three studies represent an attempt to categorize children's utterances according to various functions. For this reason it is useful to look briefly at the systems of categorization used by these two authors.

Halliday (1975) proposes a framework for a functional or sociolinguistic account of early first language development. This account is based on recorded observations of Halliday's son, Nigel, and it includes a description of three phases.

Phase I: the child's initial functional-linguistic system

Phase II: the transition from this system to that of adult language

Phase III: the learning of the adult

language

In Phase I Halliday identifies six functions to be
used in the analysis of early language:

Functions (Halliday 1975)	Meaning Glosses (Wells 1981)
1. Instrumental	"I want"
2. Regulatory	"Do as I tell you"
3. Interactional	"Me and you"
4. Personal	"Here I come"
5. Heuristic	"Tell me why"
6. Imaginative	"Let's pretend"

A later (developmentally) addition is the
Informative function ("I've got something to tell
you").

Out of these develop two broad functional categories
or "macro-functions", referred to by Halliday as
"pragmatic" and "mathetic". The pragmatic function
derives mainly from the instrumental and regulatory
systems of Phase I, and the mathetic from the inter-
actional, personal and heuristic functions of that
phase. Halliday suggests that the non-pragmatic
utterances constitute a mathetic function, as they
enable the child to learn about his environment
(both social and material aspects). This type of
language is seen as aiding the child in his const-
ruction of reality. Initially any utterance is

either pragmatic or mathetic, and certainly in Nigel's case, 75 per cent of the new lexical items entering his system (NL 6-7 i.e. 18-19.5 months, Halliday 1975 : 75) enter in the context of the mathetic, rather than the pragmatic function. The primary criterion used by Halliday to distinguish these functions was whether or not Nigel appeared to expect a response. If he was only satisfied once a response had been given, Halliday interpreted the child's utterance as pragmatic. In practice it was found that for a period of some months the distinction could be made on the basis of rising (pragmatic) or falling (mathetic) utterance tone. (Halliday's use of the term "pragmatic" is obviously much more specific than that discussed in 3.2 above.)

Clearly this type of analysis or categorization of early language will vary according to the different emphases and presuppositions of different investigators. McShane (1980) outlines a detailed categorization system for the analysis of data collected in a longitudinal study of the language development of six children during their second year. This system (see Appendix A) has much in common with Halliday's, but also differs from it in many important respects. In fact McShane (1980) raises some serious criticisms of Halliday's account of the development

of language in general, and of his theory of the transition from Phase I to Phase II in particular. According to McShane, Halliday's discussion of the "mathetic" function shows a lack of appreciation of the need to understand the child's grasp of the conceptual relationship between names and objects. For, while Halliday sees naming (the first aspect of the mathetic function) as the use of language to learn about the environment, he fails to clarify what the child is learning in this way.

While the concept of a mathetic function may appear to have relevance for the investigation of verbal strategies for gathering information about language, these strategies are unlikely to fall neatly on the mathetic side of Halliday's mathetic/pragmatic distinction. Halliday (1975) himself notes that each of these functions underlies the other to some extent and that as the child's language progresses towards the adult form, this functional framework breaks down.

CHAPTER FOUR

SEMANTIC AND CONCEPTUAL DEVELOPMENT

4.1 INTRODUCTION

In looking at what it is that the child learns about
the environment and about language through his use
of that language, one is faced with the issue of the
relationship between semantic and conceptual
development.

Although the present study was not situated in the
field of semantics (to the exclusion of syntax,
pragmatics and discourse), its focus was on the
child's use of language to enhance his knowledge of
meaning, and particularly of word meaning.   In
working with young children, word meaning is largely
concerned with reference or naming.   While inves-
tigators such as McShane are concerned mainly with
how the child comes to understand the concept that
names denote objects, the present study looks at the
question of how the child learns what class of
objects a name denotes (McShane 1980).   Here the
fundamental issue is that of joint attention, the
development of which has been studied by Bruner
(1975) and Trevarthen (Trevarthen & Hubley 1978).
Trevarthen's concept of "secondary intersubject-
ivity" refers to the infant's development of the
ability to interact with another person in such a

way that attention to an object is shared by both, as is the knowledge of this shared attention.

Once the "object" of this shared attention is linguistic the child's concepts will change and develop accordingly and the distinction between his "mental encyclopedia" and his "mental lexicon" (i.e. between his general knowledge about the world, and his knowledge about words) becomes relevant (Clark and Clark 1977).

As suggested in Chapter Two, this relationship is by no means an easy one to investigate or explain. Such an explanation is not within the scope of the present study, which takes as an operating principle Wells' (1981) assumption of a systematic relationship between the categories of thought and the categories of linguistic meaning. While adding certain qualifications to this assumption (in acknowledging that talking and thinking are related but different activities), Wells nevertheless believes that:

> ... despite their autonomy, the two abstract
> systems are related in such a way that it is
> a relatively straight-forward task for the
> children [sic] to discover the relationship
> and to use his nonlinguistic representation
> as a basis his mastery of the system of
> linguistic representation.
> (Wells 1981 : 79)

4.2   ABSTRACTION THEORY

Various theories have been put forward to account for concept formation and language learning - for example abstraction theory, which may be seen as the traditional psychological theory of concept formation, and which is based on the abstraction of common elements, or attributes.   If the principles of abstraction theory were extended to include the notion of the child as an active hypothesis-tester (producing a word and awaiting confirmation or correction), the theory would fit in well with Brown's (1958) account of the Original Word Game (Nelson 1974).   Two of the most serious criticisms raised against this theory are that it does not in fact account for the selection and generation of concepts by the child and that the abstraction process proposed by the theory appears unwieldy for the purposes of the young child.   After all, a vast number of concepts are acquired in early childhood, and the process by which this is accomplished must therefore be quick and remarkably efficient.

As far as the early development of meanings of lexical items is concerned, three "reasonably coherent positions" are: the semantic feature hypothesis, the functional core hypothesis and the prototype hypothesis (Atkinson 1982).

4.3   THE SEMANTIC FEATURE HYPOTHESIS

This position is associated mainly with the work of E.E. Clark and is based on the central assumption that the meaning of a word may be specified in terms of a set of features.   Other assumptions are as follows:

(i)   A child's understanding of the meaning of a word need not be based on the same set of features as the mature speaker's understanding of that word.

(ii)   On first hearing a certain word, the child will sample from a particular set of features.   This accounts for the mismatch between his understanding of the word and that of the adult.

(iii)   The basis of this sampled subset of features is perceptual (rather than conceptual or functional).

(iv)   Gradually the child learns new words, as well as features by which these may be distinguished from words with which he is already familiar.   In this way the child's understanding of word meanings will eventually come to conform to those of the mature speaker.

(v) The order of acquisition of features of

   meaning is from general to specific.

(Summarized from Atkinson 1982)

Central to this approach is the phenomenon of over-
extension. This is the phenomenon where the
child's meaning overlaps with that of the adult, but
extends further, for example the use of the word
"bow-wow" to refer to horses and cows as well as to
dogs (Clark and Clark 1977). The complementary
phenomenon of underextension should also be noted,
although this is much harder to identify in prac-
tice. The standard example used to illustrate this
phenomenon comes from Bloom's (1973) description of
how Allison, at the age of nine months, used the
word "car" to refer to cars moving along the street
below her window, but not for stationary cars, cars
in pictures or cars in which she was travelling.
Clark and Clark (1977) suggest that in both cases
(over and underextension) children have to adjust
these initial word meanings until a match with adult
usage is achieved. The phenomenon of overextension
in particular is an important one to bear in mind
when interpreting the utterances of young children
in terms of strategies for gathering information
about language. One must be careful, for example,
not to confuse such overextensions with the type of

violations of semantic categories described by
Horgan (1981).

As far as the semantic feature hypothesis as a whole
is concerned, it has been criticized on the grounds
that it cannot be related to a general theory of
semantic structure, nor to an independent theory of
perceptual development (Atkinson 1982).   This, it
is suggested, is because the features considered by
the theory are "blatantly ad hoc", given the one
criterion that they are perceptual.

Nelson's (1974) objection to the semantic feature
theory is that it is unable to account for concep-
tual meaning independent of lexical items and is not
supported by evidence from her own longitudinal
study (Nelson 1973) and that of Bloom (1973).

Elliot (1981) points out that children commonly
appear to base their use of language on categories
outside the normal scope of adult categorization and
she cites the example of a child who extended his
word for railway engines to include anything which
hissed, smoked or made some similar noise.   In
general Elliot cautions against the assumption that
the child's naming of objects provides a direct
indication of how he understands the meanings of the
words used.   She suggests that, although the
objects for which a child uses a word may have

certain perceptual properties in common, this does not necessarily mean that his underlying concept is nothing but a group of perceptually based features.

4.4 THE FUNCTIONAL CORE HYPOTHESIS

Nelson (1974) suggests that psychologists have tended to neglect the distinction between the processes of concept generation and concept identification. This has meant that identifying attributes are seen as a concept's basic components and the means by which a new concept is derived and situated within a hierarchical classification of other concepts. Disagreeing with this, Nelson draws on Piaget's principle of similarity through action (in sensori-motor schemes) and Cassirer's (1953) proposal that the essence of a concept is not substance, but function (Cassirer's relational theory of concepts). In constructing her own functional core hypothesis, Nelson (1974) contends that the process of feature representation described by abstraction theory and semantic feature theory is in fact secondary to the more basic cognitive operation of the scheme and the functional concept.

The functional core hypothesis attempts to account for:

(i) Those commonalities among sets of lexical items which are revealed by examining the

vocabularies of a large number of young

children.

(ii)   The fact that young children are quick to

invent a word if no known linguistic

expression is appropriate.

(iii) The fact that, after words are acquired,

they become generalized in their appli-

cation.   Overextension would be a

particular example of this phenomenon.

(Summarized from Atkinson 1982)

Atkinson's evaluation of the functional core hypo-

thesis is fairly damning, his principal criticisms

being that Nelson fails to discuss the functional

core concept in adequate depth, and that the theory

is "dangerously unconstrained" at the point of first

word acquisition.

It does seem that the main implication of Nelson's

view for the present study is simply to add simi-

larity on the basis of function, action or affect,

to Clark's notion of similarity on the basis of

simple perceptual properties (notably that of

shape).   As Atkinson's criticism suggests, it is not

easy to substantiate the claim that functional

similarities are primary, or more basic than percep-

tual similarities.

One other important point arising out of Nelson's
approach is her warning that the distinction between
knowledge about objects and word meaning takes time
to develop (Nelson 1978).

4.5   THE PROTOTYPE HYPOTHESIS

The central assumption of the last two approaches is
that word meaning can be seen in terms of a set of
features.   This idea has been criticized and in the
work on adult cognition it was suggested that seman-
tic categories operate in terms of degrees of
membership, rather than a specific set of critical
features (Atkinson 1982).

This criticism forms the basis of what Atkinson
calls the prototype hypothesis and the main idea
behind it is that semantic categories are internally
structured and that some instances will constitute
"better" members of a particular category than
others.   One model of adult semantic memory which
adheres to this notion is the feature comparison
model (Smith, Shoben and Rips 1974).   According to
this model a robin would be seen as a prototypical
bird, whereas a chicken would not.   These authors
make a distinction between the "defining features"
of a concept and its "accidental" features.   Such
features as having wings and a red breast would be
defining features of the concept of robin, while

features such as eating bread and being undomesticated would not be. No features are critical in the sense that, for example, a robin whose breast feathers turned brown could no longer be called a robin.

This distinction between defining and accidental features is a very helpful one for an understanding of how young children come to know the meanings of words. In terms of the present study, this distinction implies that the child's hypothesis-testing will be directed largely at differentiating defining from accidental features.

With regard to the developmental work based on the prototype hypothesis, Atkinson's (1982) main reservation is based on the lack of any clear specification of the precise nature of prototypes. Nevertheless, it seems likely that this approach comes nearer to accommodating the complexity of semantic development than the others discussed here.

In the discussion in Part II, reference is made to the prototype hypothesis as outlined by investigators of adult cognition, since the various applications of this hypothesis to the study of child development do not have direct relevance for the present study.

PART II : THE STUDY

CHAPTER ONE

FRAMEWORK AND METHOD

1.1   A FRAMEWORK FOR STUDYING THE CHILD'S USE OF
       LANGUAGE TO LEARN MORE ABOUT LANGUAGE

The preceding review serves not only to outline the

work in language development which is relevant to

the present study, but also to provide a theoretical

framework within which to pose the problem investi-

gated by this study, and from which to draw guide-

lines for the interpretation and analysis of the

data.   Before describing the study itself, some of

the main points from this review will be drawn

together to indicate the framework within which the

study was conducted.

1.1.1   THE CHILD AS AN ACTIVE PARTICIPANT IN
        LANGUAGE DEVELOPMENT

The child is seen as an active participant in his

own language development.   Piaget's account of the

child as learning by acting on and manipulating his

environment is a useful theoretical starting point.

Although Piaget does not deal with the topic of the

present study, his account of the development of

sensorimotor thought illustrates the principle of

learning by interacting with and manipulating the

environment.   It therefore provides a useful base

for the suggestion that the young child manipulates his verbal environment to learn more about language. It is by acting on language that he develops his knowledge of language. A consideration of the cognitive prerequisites for language helps to broaden this theoretical base.

However it is also important to take into account individual differences and the communicative context of language development - two issues which would be neglected in relying too heavily on the Genevan tradition. Also important in a theory of the child as an active language learner, is the representation of purposes (or intentions), plans and information, in terms of long-term and working memory.

1.1.2 HYPOTHESIS

It is suggested that one aspect of the child's active participation in his language development involves his use of language to learn more about language. The main hypothesis of this study was that the child formulates hypotheses about language (and about the meanings of words in particular) and tests these hypotheses by manipulating his verbal environment according to various strategies. These strategies are referred to as verbal information-gathering strategies.

1.1.3 CRITERIA FOR IDENTIFYING THIS ACTIVITY

There is, of course, no direct access to such hypotheses or strategies and the absence of any clear metalinguistic awareness at the age of two to three years makes them even more difficult to identify than adult hypotheses and strategies. However some guidelines for inferring their existence may be derived from the philosophy of language and the psychology of language development.

The first requirement of the present study was to be able to recognize when a child is seeking feedback about his understanding of language. Whether this activity is said to be intentional or purposeful, the important point for this study was to be able to identify it when it did occur. This was done primarily on the basis of the notions of directedness (Searle 1983) or "sustained direction of behaviour during deployment of means" (Bruner, in Greenfield 1980), and the notion of the presentation or representation of conditions of satisfaction (Searle), or "stop order defined by an end state" (Bruner).

Several of the analytic principles for this study were derived from Greenfield's (1980) attempt to provide an operational and logical analysis of intentionality by examining the use of discourse in

early child language.   She believes that it is

possible to operationalize intention through an

analysis of the sequential aspect of interaction

behaviour, and of conversational discourse in par-

ticular.   Several points from Greenfield's (1980)

discussion are outlined below:.

- The negotiated interpretation of intention

    is central to an interactional approach to

    intention.

- Most studies have neglected the infant's

    interpretations of the adult's intentions

    (in terms of action and visual behaviour).

- "The processes of mutual interpretation that
    go on .in communicative interaction, as mani-
    fest through microanalytic techniques, can,
    however, reveal observable signs of the two
    major features of intentionality direction-
    ality and terminal requirements (Bruner 1974)
    and go beyond the solipcism of each partici-
    pant's interpretation of the other partici-
    pant's intention."
    (Greenfield 1980 : 259)

- In order to establish a direction there must be

    two ordered points.

- Directionality is only indicated where there is

    not immediate acknowledgement.   It is pre-

    cisely when the intended consequences are not

    immediately forthcoming that the intentional

structure becomes most accessible to the
investigator.

- The adult's collaboration with the child's
  intended plan provides behavioural evidence for
  the adult's perception of the child's
  intention.

- If one participant is happy to continue the
  interaction on the basis of the other's inter-
  pretation of his intention, this still does not
  give one direct access to the original
  intention. Nevertheless Greenfield argues
  that "the agreed upon interpretation of each
  person's intention in the dyad is an important
  phenomenon in its own right." (Greenfield
  1980 : 262)

- Without complementary intentions between the
  parties, the communication will be
  unsuccessful.

- The intention to communicate (the intention to
  affect the hearer/s) should be distinguished
  from a communicative intention (the particular
  effect intended).

In discussing requests, Griffiths (1979) suggests
that one can recognize the goal as having been
achieved when the child quiets or adopts a different

mode or direction of behaviour. One would also be looking for evidence of mutual awareness or understanding of the child's utterance/s on the part of the child (the speaker) and the hearer, in terms of Grice's notion of meaning-nn. As the above discussion of Greenfield's (1980) ideas makes clear, this is complementary to rather than distinct from evidence of directedness and presentation or representation of conditions of satisfaction. For example, Greenfield suggests that directionality is only indicated where there is not immediate acknowledgement, which could be seen as the point where mutual awareness breaks down and has to be re-established.

The point of including Grice's notion of mutual awareness or mutual understanding as a consideration in its own right, is to emphasize its value in recognizing when a child is actively seeking feedback about language. For quite apart from evidence of directedness and conditions of satisfaction on the part of the child, the way in which a child's utterance is understood and responded to by the adult provides an extremely important guideline for the investigator who is also concerned with the interpretation of that utterance. The usefulness of this aid to interpretation will be appreciated if one considers all the contextual information that is likely to be readily available to the person

addressed, but which is extremely difficult to record for the purposes of later interpretation. This is true whether the person interacting with the child is familiar with him or not, but will obviously be especially true if that person is one of the child's caretakers or siblings.

The basis of identifying the activity of seeking information about language was therefore the interpretation of a child's utterances in terms of directedness, the conditions of satisfaction and mutual understanding between speaker and hearer.

The second requirement of the study was to be able to infer that this activity took place in terms of certain identifiable strategies. The idea that children use verbal information-gathering strategies implies that the utterances involved in seeking information about language will display some form of regularity, or will give rise to patterns of interaction in which certain regularities can be detected. In order to identify such strategies, sequences of interactions would have to be scanned and comparisons made amongst those utterances which may be interpreted as involving the eliciting of feedback about language.

If children do use various verbal information-gathering strategies, each type of strategy should

have its own typical features which are evident in
the pattern of the interactions associated with its
use.   This should be so particularly when a child
is interacting with a caretaker, as it is assumed
that such strategies do not arise simply out of the
child's own cognitive development.   Although the
focus of this study was on the active role of the
child, it was important to remember that it was on
the role of the child in the "language-transmission
partnership", and the analysis was based on the
interaction between the child and a more mature
speaker.

Verbal information-gathering strategies are seen as
arising out of the communicative interaction develo-
ping between the child and her caretaker/s.   It may
well be that a child's choice of strategy can be
traced directly back to some distinctive pattern in
her parents' way of communicating.   This was no
doubt the case with Kelly, as Horgan (1981) points
out that she was exposed to language games from an
early age.   Kelly's linguistic "jokes", such as her
violations of semantic categories, are quite likely
to have developed because she learnt that this type
of interaction was appreciated by her parents, and
that she was therefore able to attract and hold
their attention in this way.   However this does not
mean that such a pattern of interaction could not

develop into an independent strategy with the testing of hypotheses or gathering of linguistic information as its primary purpose.

Griffiths (1979 : 117) suggests that children at the holophrase stage use language to draw others' attention to objects simply in order to "have the pleasure of dialogue". However, he also argues that in using language in this way, the child is learning to refer to the objects, thus developing a means for referring to absent entities. Once the child is past the holophrase stage it does seem unlikely that his sole purpose in referring to objects or events will be "pleasure of dialogue".

The present study is not restricted to child/ caretaker interaction, as it is assumed that such strategies, once developed, will operate in interaction with any competent speaker. In fact it may well be easier to identify an instance of hypothesis-testing if the hearer of the initiating utterance does not fall automatically into the pattern of interaction which typifies the use of a particular strategy. Evidence of directedness and the conditions of satisfaction would be clearer without the immediate understanding and feedback which a caretaker, familiar with that type of initiating utterance, would be likely to provide.

1.1.4 CONTEXT

The context of this study is a broadly conver-
sational one, as recommended by Dore (1979 : 337),
who sees conversation as the "immediate and primary
context for acquisition", "the most significant
environment for learning language", and by
Greenfield (1980) whose attempt to operationalize
intention depends on the analysis of conversational
discourse.

1.2 METHOD

1.2.1 COLLECTION OF THE DATA

The study took place in two homes, and encompassed
the observation of three children in interaction
with various others - primarily the mother, the
investigator and siblings, for a period of six to
eight weeks. In the first home two male siblings
were observed in interaction with their mother and
the investigator, and occasionally the maid. N.
was two years and Ma. three years and three months
at the start of the study. In the second home, P.,
a male child aged three years and ten months at the
start of the study, was observed in interaction with
his mother, father and elder brother, the investiga-
tor, and occasionally various visitors.

These subjects were chosen from a group of four
families recruited through acquaintances of the
investigator. There was no formal criterion for
the selection, although an informal assessment of
language production was used as a very rough guide-
line. Being slow to talk means very little as a
predictor of later linguistic ability, or even as an
indicator of current comprehension ability. Never-
theless, it seems fair to assume that those children
whose production of language is relatively advanced
for their age will be the most likely to be using
effective verbal information-gathering strategies.

Two families were not included in the study for the
reasons outlined below:

Family 3: a single female child (aged 2 years at
the start of the study) was observed in interaction
with her mother and the investigator. Although she
was observed for several sessions in the expectation
that her level of production would reach an adequate
point, this was not the case by the fourth session,
and it was decided to exclude the child from the
study. The fact that she was only separated from
her "dummy" at great emotional cost was also a draw-
back to an accurate understanding of her utterances!

Family 4: a fourth mother/child dyad participated
in the study for a full six week period, but the

data from these observations has not been included
in the analysis and discussion for two reasons.
Most importantly, the child was very soft-spoken
and although many of her utterances could be trans-
cribed accurately, it was felt that there was a bias
in favour of those utterances which imitated or
relied heavily on what had been said before, as well
as those utterances which were taken up and expanded
by an adult.   There were many sequences where the
child's utterances could not be transcribed accura-
tely, or even at all, and it was felt that trans-
cription was too context-dependent to be a reliable
source of the type of data required for this study.

Secondly, the child's behaviour was clearly influen-
ced by the investigator's presence, in that she
often became very excited, so that her speech
pattern was quite different from those times when
she appeared calmer and less affected by the novelty
of the investigator's visits.   This was confirmed
by recordings made by the mother when she was alone
with the child.   This situation did improve over
the weeks, but the effect was still quite noticeable
during the last sessions.   Quite apart from the
concern that the samples of speech collected were
not typical of the majority of the child's inter-
actions with familiar adults, it was also a problem

in that her speech became far less coherent and
audible when she was excited.

The remaining two family groups were observed in
their homes at approximately one-weekly intervals,
for a period of six to eight weeks.   Each session
lasted approximately one and a half hours for N. and
Ma. and they were observed for a total of eight ses-
sions (Family 1).   In P's case (Family 2) there
were six sessions lasting approximately one hour
each.   In this way it was hoped to monitor roughly
equal periods of interaction involving each child.

After a preliminary visit, each session was recorded
using a Philips portable cassette auditory tape
recorder, carried slung over the investigator's
shoulder.   A detachable microphone was clipped to
the strap of the recorder.   No notes were taken
during the observation periods, as the investigator
participated in any ongoing activities and inter-
actions.   Any necessary notes were written after
each session.   No attempt was made to structure the
situation as the desired context for observation was
a fairly broad scope of normal everyday activities
such as play, "reading", "helping" in the house and
garden and commenting on topics of mutual interest
(e.g. animals, food etc.).

The tape recordings were transcribed in full by the investigator and, together with the contextual notes, constituted the raw data for analysis.

1.2.2 ANALYSIS OF THE DATA

The analysis was performed in two stages:

(i) Each of the two sets of data was examined as a whole and several verbal information-gathering strategies were identified for each child.   This was done on the basis of the emergence of consistent patterns or regularities in the data, where an initiating utterance from the child gave rise to a typical pattern of interaction between himself and his hearer, such that informative feedback about language was provided by the hearer. A useful starting point for this analysis was provided by those phenomena which are well established within the study of language development, such as questioning (by means of interrogative utterances), imitation and naming or stating.

(ii) Once these strategies were identified for each child, the data was coded in terms of indivi-dual instances of each strategy.   Also inclu-ded in this coding procedure was a separate category for those words which appeared

regularly throughout the record of a child's utterances, in the various contexts where verbal information-gathering or hypothesis testing could be inferred, even in the absence of a clear instance of one of the identified strategies. Part of the basis for inferring that a child was testing his understanding of a certain word was an overall consideration of the use of that word throughout the study.

The raw data were examined by one of the investigator's colleagues who was familiar with the study of language development and the identified verbal information-gathering strategies were discussed. The data were then coded "blind" by the colleague. Once the second coding was complete the two sets of analyzed data were compared and discussed and a final agreement was reached on the utterance sequences to be included as examples of the strategies. Agreement was also reached on the individual words to be included in the separate category described in (ii) above.

CHAPTER TWO

RESULTS AND DISCUSSION

In view of the interpretative nature of the
analysis, the discussion of results will be inte-
grated with their detailed presentation. A brief
summary of the results is presented below.

2.1   SUMMARY OF THE RESULTS

2.1.1   VERBAL INFORMATION-GATHERING STRATEGIES

Four strategies were identified as common to all
three children:

   (i)   Asking direct questions about names or
         meanings.

  (ii)   Naming or stating.

 (iii)   Metaphoric use of language.

  (iv)   Selective imitation.

In addition, various individual strategies were
identified.

N. and MA.

   (i)   Asking questions not directly related to word
         meanings or names.

  (ii)   Arguing/denial.

<u>P</u>.

(i)   Taking up words and using them in the same

context, but not as repetition of an adult's

utterance.

(ii) Taking up words and applying them to

different topics or in different contexts.

The number of (child) utterances involved in the use

of verbal information-gathering strategies was

calculated as a percentage of a child's total number

of utterances.   This included not only the child's

initial utterance/s giving rise to the exchange, but

also the other utterances made by him during the

rest of that interactional sequence (i.e. until the

conditions of satisfaction were met or the topic

changed).   For example:

P.   These are wood.
     These are wood.
     This is wood
      here.
                          I.   Mm.

P.   Wood.
     This is wood like
      that train you
      gave me.
                          I.   Oh yes, so it is.

Total for P. = 5 utterances to be included in the

total of naming/stating utterances.

STRATEGY	<u>N</u>.	<u>Ma</u>.	<u>P</u>.
Direct questions	0,75	2,17	4,26
Naming/stating	7,95	6,36	7,61
Metaphoric use of language	4,14	1,93	1,13
Selective imitation	2,39	0,67	1,51
Questions not directly related to word names or meanings	2,49	1,3	-
Arguing/denial	1,6	0,59	-
Taking up words in same sense or context	-	-	5,02
Taking up words in different sense or context	-	-	1,67

Table 1: Percentage of utterances devoted to particular verbal information-gathering strategies, expressed in terms of the total number of utterances per child.

It should be noted that the above summary table is not intended to imply that, for example, Ma. would never take up a word and re-introduce it into the conversation as in the last two sections of this table. It simply means that he did not do so in a strategic way, that is, he did not use these two verbal information-gathering strategies.

Similarly, only a few of the children's naming or stating utterances were included as instances of the use of what has been termed the naming/stating strategy for gathering information about language.

2.1.2 INDIVIDUAL WORDS TESTED BY N. AND MA.

<u>N</u>.

might

little tiny (big, small)

metal, glass, clay

mouse

my, my mummy's, your

brand new, new

other, another

need (as opposed to "want")

<u>MA</u>.

metal, glass, clay

little

boy/girl

No such words were identified for P.

2.1.3 INTERSUBJECTIVE AGREEMENT

A measure of intersubjective agreement was calculated according to the number of utterances which were included in the investigator's initial analysis of the data, but on which intersubjective agreement was not reached.

<u>N</u>.	<u>Ma</u>.	<u>P</u>.
90%	88%	91%

Table 2: Percentage of initially selected
          utterances retained after final analysis

2.2   DISCUSSION

Discussion of the results of analysis will be
supported by relevant examples presented in the
text.   In one or two instances, where the relevant
interaction sequences are particularly lengthy,
these are set out in full in Appendix B.   It is
neither practical nor necessary to include all
instances in discussing a particular strategy.
(This information is represented in the summary of
results.)

2.2.1   PRESENTATION OF EXAMPLES

Examples are presented in ordinary English ortho-
graphy, deviating from this only in the case of
marked mispronunciation.   Question and exclamation
marks and dashes provide some minimal indication
of intonation and pauses.   The child's utterances
are set out against the left-hand margin of the page
and each utterance begins on a new line.   All other
utterances are set out continuously in the middle
column, with any necessary contextual information
appearing inside square brackets against the right-
hand margin.   Speakers are identified as follows:

M. - mother

F. - father

I. _ investigator

H. - P.'s brother

2.2.2 STRATEGIES COMMON TO ALL THREE CHILDREN

(i) ASKING DIRECT QUESTIONS ABOUT NAMES OR MEANINGS

The use of interrogative utterances such as, "what's that?", "what's that called?", "what is this?", or "what's x?", is perhaps the most obvious way in which a child might use language to increase his understanding of names and word meanings. Certainly it is the most usual way for an adult to do so, whether she asks someone else or "asks" a dictionary. However the data from the present study suggest that there are various factors which determine the extent to which a child will rely on this as a verbal information-gathering strategy.

A relatively high percentage of P.'s utterances (see Table 1) were involved in conversational exchanges initiated by interrogative utterances of this type, for example:

P. What is that
   for, Mum?
                        M. Hm?
P. This.
                        M. It's an apple
                           corer and it's
                           to take the pips
                           out of the middle
                           of the apple.
                           Look, I'll show
                           you on this one,
                           shall I show you?
P. Yes.
                        M. It makes a hole
                           right through the

middle like a
                                      doughnut.
                                      There you are, now
                                      it's got the pips
                                      and things out,
                                      and that bit in
                                      middle is called
                                      the core.

P. Oh, the core?

                                  M. Mm. It's a bit hard
                                     and we don't eat it.
                                     I'm having trouble
                                     with this apple
                                     corer, I can never
                                     get the thing out.
                                     There we are.

  . . .

P. What's mustard?

                                  M. Mustard – is a
                                     fairly burny mix-
                                     ture that we eat
                                     with meat sometimes.
                                     This is mustard.

P. Mm.

                                  M. Then we mix it
                                     all up.

P. What're doughnut
   middles?

                                  M. Hm?

P. What're doughnut
   middles?

                                  M. Holes!

P. Hm.

                                  M. Doughnuts haven't
                                     got middles, so
                                     they've just got
                                     a big hole.
                                     It's a piece of
                                     round nothing.

P. What?

                                  M. A piece of round
                                     nothing.

P. It is a round
   something.

                                  M. Well what is it?

P. Hole!

                                  M. Is a hole
                                     something?

P. Mm.

                                  M. I suppose it
                                     might be.

P. Mm mm.
   That's the
   difference.

Note that the interaction here is between P. and
his mother and that the "what is x" interrogative
utterance type appears to be understood by the two
of them as a request for a full explanation.   P.'s
mother is probably particularly likely to give de-
tailed explanations of word meanings in view of both
parents' concern over the correct use of language
(see p. 146 for discussion of this point).   The
development and use of this strategy is therefore
likely to have been encouraged by P.'s parents.
The following is another example showing just how
seriously P.'s mother takes this form of request:

P. Oooh, ahh.
   I burped.
                     M. You burped!
P. Ja.
                     M. What made you
                        burp?
P. A bup, bip.
                     M. What's that?
P. Pun, a bab, bab.
   What's a bulb?
                     M. A what?
P. A bulb?
                     M. A bulb?
P. Yes.
                     M. Well, there are
                        several things
                        called bulbs -
                        part of the light
                        the part that
                        shines in the
                        light - you've
                        seen Dad change
                        a bulb, and it's
                        also a kind of
                        root.

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P. Mm.

                M. You know that
                   onion that you
                   and H. planted?
                   Would you like
                   to show it to
                   Jill?

P. Yes.

                M. Cause it's
                   growing so well.

Nelson (1973) notes that questioning at the age of
two years was positively related to the indices of
language development used in her study. In parti-
cular, she found a positive relationship between
questioning and vocabulary acquisition. However
she cautions that this need not imply that question-
ing is "an efficient strategy for acquiring a larger
lexicon" (1973 : 54), since it could simply be that
advanced speakers engage in questioning more often
than other children. The latter interpretation
fits in with the idea that the mastery of questions
is a complex achievement for the young language
learner.

It is in considering what Nelson (1973) refers to as
"language questions" that one is most clearly con-
fronted with the problem of distinguishing semantic
and conceptual knowledge, or knowledge about lan-
guage and knowledge about the world.

The problem of the relationship between language and
thought is an enormously complex one which is well
beyond the scope of this study. Nevertheless the

basic position taken here can be outlined briefly as follows: the Piagetian notion that the roots of both language and thought lie in early sensorimotor action is preferred to Vygotsky's view that each has different roots. However language is seen as more integral to thought than is implied by Piaget's description of it as a tool for thought.

In the context of the present study a child's utterance "What's that?" may be positioned somewhere on a continuum between a request for information about objects or events and a request for information about words. Where the utterance is said to fall on this continuum will depend on its context, in particular the way in which the criteria (directedness etc.) are fulfilled.

In this way, some interrogative utterances which might in isolation appear to relate to "language questions" were excluded from this category, for example:

```
Ma. Why's she,
    Why's she got
      some cake, or
      some apple -
    Is it apple tart?
                        M. No, it's jam
                           doughnut.
Ma. I want some.
```

Given the overall context of the interrogative utterance, "Is it appletart?", the most reasonable

inference is that Ma. knows the meaning of "apple
tart" and is simply seeking empirical confirmation
that this is what "she" (the investigator) has.
On being told, "No, it's jam doughnut", he does not
seek elaboration on the meanings of these two terms.

This may be compared with the following example,
where the intention is clearly to elicit information
about the correct use of terms:

Ma. Is that a bike,
    or is this a
    bike?
                        M. This one's a
                           tricycle and
                           that one's a
                           bike.
                                        [Ma. laughs]
                        M. But N. can use
                           his like a
                           scooter, hey,
                           N.? You sometimes
                           do yours as, as a
                           a scooter.

Here M.'s understanding of Ma.'s intention and Ma.'s
own acceptance of the response based on this inter-
pretation, support the inference of the activity of
verbal information-gathering.

Some interrogative utterances may superficially
appear to be "purely empirical", but taken in con-
text they emerge as "language questions".   For
example:

P. What's that?
                    I. This?

P. Ja.

> I. It's one like H.'s.
> A tape recorder.
> You said you'd
> seen one like that
> before.

P. Mm.

> I. Mm.

While this at first appeared to be a question equivalent to: "Is that a tape recorder like my brother's?", it became clear across sessions that this child was not yet able to apply the name "tape recorder" spontaneously, nor was he fully aware of its defining features. This example illustrates the usefulness of analysis in the conversational context and across sessions.

The following example illustrates very clearly the difficulty of categorizing such questions:

Ma. Mum, isn't
this a lily?

> M. Oh, it looks
> just like a
> a lilypad.
>
> M. It's a nastur-
> tium, but on
> the pond **
> big fat leaves
> frogs sitting
> on them.

[M. & I.
discussing
a televised
ballet which
had featured
frogs on
lilypads]

(Note: * indicates word/s which could not be transcribed.)

In such instances, as indeed in all linguistic analysis, the value of intersubjective agreement cannot

be over-emphasized. As mature and competent spea-
kers of the language themselves, it is assumed that
both the investigator and her colleague had avail-
able to them in the interpretation of utterances,
many cues which would be extremely difficult to
formalize.

It was suggested at the beginning of this section
that various factors may determine the extent to
which this type of interrogative utterance is used
to pose questions directly related to names or word
meanings. It was further noted that P. was found
to use this verbal information-gathering strategy on
a regular basis and to considerable effect. Of
course the nature of the data presented in this
study precludes any conclusions about how important
this strategy is for children in general. Never-
theless, what was noted was that N. and Ma. did not
appear to rely on it to the extent to which P. was
observed to do (N. = 0,75%, Ma. = 2,17%, see Table
1).

As far as N. is concerned, the tendency not to use
this strategy may be explained by considering the
complexities involved in the mastery of interroga-
tive utterances. WH-words are at first "where" and
"what", although only "where" appears to be
correctly understood (Klima and Bellugi 1966) and

confusion between what, where, when and why ques-
tions persists for some time (Ervin-Tripp 1970).
Since N. was the youngest subject by one year and
three months, he may well simply not have mastered
the use of this type of interrogative utterance
sufficiently for it to operate as a reliable means
of gathering information about meaning.

However, one might speculate that some children
would find this particular verbal information-
gathering strategy an efficient one only if used
fairly infrequently. For if young children, learn-
ing a language for the first time, relied heavily
on interrogative utterances to increase their know-
ledge of language, their conversations would consist
of a constant stream of questions and answers.
This would probably prove an inefficient way of
learning boundaries of word meanings for two rea-
sons. Firstly, the question-answer format is a
very well defined pattern of interaction in adult
communication, where the conditions of satisfaction
for questions about language are often quite mini-
mal, for example:

    What's this flower called?
                                    It's a gardenia.

Although adults often do give more detailed answers
to such questions from young children, the
conventional (adult) illocutionary force could

influence the adult hearer, resulting in a response which fails to meet the child's conditions of satisfaction, for example:

N. Mummy -
   what's this
   called?
                              M. It's a masher.
                                 It's for mash-
                                 ing potatoes.

This response, while more than likely to satisfy an adult questioner, clearly does not provide the two-year-old with sufficient information, as he goes on to ask another question:

N. Why?
   Why?
                              M. Because some-
                                 times you want
                                 mashed potatoes.
                                 You cook them
                                 first, and then
                                 you mash it with
                                 that.

(See 2.2.3 (i) for a discussion of such questions which are less directly concerned with names or meanings.)

Similarly:

Ma. What is this -   [Holding up
    this?   a card
                  I. Let me have a   with a
                     look. I think   picture of
                     it's a donkey.   a donkey
Ma. I thought it was   on it.]
    a elephant.   [Laughing]

                  I. No, it doesn't
                     look anything
                     like an elephant.
                     Where's the trunk?

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```
Ma. Because I thought                        [Small
    it was an ele-                            laugh]
    phant cause it
    was white and
    that colour.
                    I. Oh, and you mean
                       and all the other
                       elephants are
                       purple as well.
Ma. Yes.
                    I. Hm.
Ma. I thought it was
    an elephant
    cause it was
    white and
    purple.
    I thought it was.
                    I. Mm.
 Ma. But it isn't.
                    I. No.
```

A second point about the inefficiency of using too
many interrogative utterances concerning meanings,
is that adults might well find such a pattern of
interaction boring or irritating. This could have
the effect of making their replies terse and minim-
ally informative.

In general, because question-asking by means of
interrogative utterances is such a well defined pat-
tern of interaction, usually with clear beginning
and end markers, conversational exchanges initiated
in this way may often be less well integrated into
the overall conversational context than interaction
sequences which are initiated in some other way.
Such better integrated sequences are more likely to
provide the young child with clues about the bounda-
ries of word meanings, as each piece of information

is likely to be more clearly embedded in its context.

Whether or not this particular verbal information-gathering is an efficient one for a child, will depend very much on those with whom the child interacts regularly. Whereas P.'s mother tends to respond to this type of interrogative utterance in some detail, this does not appear to be the case with N. and Ma.'s mother. Since both mothers share the same SES and culture, this difference supports Robinson's (1981) suggestion that the connection between SES and differences in question-answer patterns is a complex one. Individual differences within SES and culture must be taken into account.

Of course interrogative utterances concerning names or meanings may be used simply to initiate an interaction and direct the adult's attention to the child's purpose. The important thing, after all, is the adult's understanding of the child's purpose, and this will come from the overall context of the utterance. It is utterance meaning and not sentence-type which will be most influential in guiding the interaction.

Snyder-McLean and McLean (1978) place interrogative utterances, or WH-questions, at the "most intentional" end of their continuum of metalinguistic

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utterance types (see p. 11).   They argue that there are two ways in which WH-questions might function as a G-strategy (verbal information-gathering strategy).   Firstly, such questions are likely to elicit the linguistic (and particularly lexical) information which the child is seeking.   Secondly they suggest that "question-asking simply increases the probability that the mature listener will direct an utterance to the child" (1978 : 316).   While this is borne out to a certain extent in the results of the present study, the previous discussion suggests that interrogative utterances do not play the central role implied by Snyder-McLean and McLean, in the use of language to learn more about language. In addition, their view of such interrogative utterances as the most intentional type of G-strategy needs to be examined.   At first sight such utterances may seem to be the easiest to interpret as "intentional", since it is hard to imagine someone asking a question without being aware that they want an answer - or being aware of what type of response would satisfy their purpose (even if this awareness is in the form of intention-in-action).   This is probably what Snyder-McLean and McLean have in mind when they refer to these utterances as "metalinguistic".   However, as pointed out in Part I (Chapter Two), the attribution of intentionality and of metalinguistic awareness is not as simple as it may at

first appear. Certainly there is no reason to suggest that the interrogative utterances described in this section fulfill the criteria on which this study is based any more conclusively than other types of utterance. The overall context of an utterance, and not its sentence-type, is what is important in interpreting its meaning.

Levinson (1983) refers to "imperative", "interrogative" and "declarative" as sentence-types. These are linguistic categories that can be applied to sentences, and must be distinguished from a second set of categories, "order" (or "request"), "question" and "assertion" (or "statement"), which are applicable to the use of sentences. In this way, the child need not use the interrogative sentence-type in order to ask a question. Rising intonation often provides a way of identifying questions which do not follow the interrogative sentence -type. However a more conclusive way of deciding whether or not a child's utterance constitutes a request for information, is according to the criteria of directedness, conditions of satis-faction and mutual understanding.

It is interesting to note that Meyer (1982), in criticizing theorists who analyse sentences out of their utterance context, extends the notion of

questioning even further. He suggests that "reco
urse to language is a questioning process, to the
extent that in any discourse held, spoken or writ-
ten, there is a question at stake" (Meyer 1982 :
217). He also regards linguistic activity as a
whole as simply one particular type of human action,
going on to suggest that human action itself should
be conceptualized as problem solving. These assum-
ptions are complementary to those on which the pre-
sent study is based.

(ii) NAMING/STATING

The second type of verbal information-gathering
strategy identified for all three children was that
of naming or stating. McShane (1980) describes
three "statement categories": naming, description
and information (see Appendix A). In studying
language development prior to the age of two years,
McShane's concern with naming is primarily in terms
of how the child acquires the concept that names
denote objects. The focus of the present study, on
the other hand, was on how the child learns what
class of objects is denoted by a particular name,
which is only of secondary interest to McShane.
His distinction among naming, description and infor-
mation could be a useful starting point for an
analysis of this type of utterance. However it
soon becomes clear that, as is so often the case

with this type of analysis, a difference in focus leads to a very different way of categorizing a child's utterances.

In the present study, the strategy identified as naming or stating cuts across several, if not all of McShane's categories. McShane himself notes that naming an object while pointing (viewed by him as an instance of the Regulation category of Attention), could also be categorized as Naming. Similarly the Regulation category of Request refers to utterances requesting or demanding something from another. It will be argued here that many instances of naming or stating are actually requests for confirmation or further information.

There is of course a sense in which any utterance on the part of a young child may elicit informative feedback from an adult. The role played by adult speech in facilitating language development has received considerable attention in recent years (see Wells and Robinson 1982 for a review of this work). However a focus on the way adults elicit or respond to a child's utterances is inadequate for the purposes of the present study since the concept of a strategy for language learning implies purpose on the part of the child.

For example, if the child were to say "There's an elephant", it would be quite wrong to infer simply on the basis of the adult's response: "No, that's a donkey", that the child was seeking confirmation or correction. In such a case, the child's purpose could be quite different, for example simply to gain the adult's attention. This is of course true even of interrogative utterances, but the problem is less acute there.

For this reason it is essential to include other criteria in evaluating the child's purpose. Grice's concept of meaning-nn stresses the importance of mutual awareness of the child's intention and clearly one must look for evidence of this in the child's utterances as well as those of the adult. In terms of the previous discussion on intentionality and awareness (see Part I, Chapter Two), it is suggested that this mutual awareness need not be of the type where speaker and hearer can verbalize it. Certainly it will not be a mutual metalinguistic awareness - "here we are talking about language so that I can learn about language"! One would not look for this level of awareness in a question-answer exchange between an adult and a young child, and yet it is clear that mutual awareness exists there, or the communication would fail.

It is therefore necessary to look for other indicators of successful communication - in this case the criteria of directedness and conditions of satisfaction. These should help establish whether the adult is providing informative or corrective feedback purely through some motivation of her own, or as an interactive response to some perceived intention in the child's utterance, in which case mutual understanding can be said to be operating.

In instances where feedback is immediate and confirming, it is difficult to establish directedness and one can only get a limited idea of the conditions of satisfaction:

```
N. Got a man.                        [Mother
   Oh, little green                   reports
    man.                              on colours
   Little green man.                  "he hasn't
   Oh.                                 really
              M. 'Tis too.           known any,
                                      but sudden-
                                      ly I notice
                                      that he's
                                      starting to
                                      pick out
                                      green."]

N. Look, look, Mum.                  [Holding
                                      out a hat]
```

In this example the only hint of directedness lies in the repetition of "little green man" (Greenfield 1980). Since the child's attention quickly moves elsewhere it seems that his purpose has been satisfied by his mother's response. However there is

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not enough information to say whether he was satisfied by simply gaining her attention, or whether he had in fact been seeking confirmation for his utterance. The mother's report that he is in the process of acquiring the concept of green does provide some useful contextual information, but such a sequence could only be reasonably classed an as instance of the naming/stating strategy if the child is seen to use this strategy consistently elsewhere.

In some instances directedness is easier to establish but the conditions of satisfaction remain ambivalent, for example:

N. Little tiny
   flower.
                        Ma. (Or some poison.)
N. Little tiny
   flower.
                        I. Hm.
N. Look, this little
   tiny flower.
                        Ma. (Look what I can
                             do.)

                        I. Little orange
                           flower, ja.
N. Ja.   [Runs off]

Here the directedness is fairly clear. As far as conditions of satisfaction are concerned, it could be argued that the child's purpose is not met simply by gaining the adult's attention ("Hm"), but only by the adult's confirmation and expansion in "little orange flower, ja". However the adult's first response does appear somewhat noncommittal, and

therefore possibly inadequate to satisfy any purpose
related to capturing her attention.

Nevertheless in this instance there is more evidence
for a naming or stating strategy in terms of direc-
tedness, the response chosen by the adult and the
fact that this response in some way satisfied the
child.   There is no doubt that, if the child were
testing out the label "little tiny flower", such a
response would be appropriate to satisfying this
purpose.   Further evidence for this sequence as an
instance of testing comes from the broader context
of the study as a whole, where the concept of size
(particularly expressed as "little tiny") was seen
to be a regular concern of this child.   This last
point will be taken up again in discussing indivi-
dual words.

In some instances the child already has the adult's
full attention, which makes the inference of a
naming/stating strategy more reasonable, for
example:

> Ma. I want to go   [N. has
>   and see.   dropped a
>   Did he drop   milk
>   that? Did N.   bottle]
>   drop that?
>   Mum, did N.
>   drop that?
>
> M.   Yes, it was a
>   a mistake, he
>   didn't mean to.

Ma. Oh I thought, I thought it was glass. I thought it was glass.

M. No, Mummy said he could pick it up, so he did, and then it dropped. See, N., that's why Mummy says you mustn't pick it up, cause it's heavy, and it's slippery.

I. It looks very heavy to me.

N. Mummy, it's glass.

M. It's glass and next time it might break and then cut your fingers.

N. Mm.

[The subsequent interaction is between Ma. and the mother, with no attempt by N. to regain her attention.]

However it should be noted that the criterion of conditions of satisfaction can never really be conclusive on its own. Even in the above example it could be argued that the child's purpose was to keep his mother's attention and sustain the ongoing interaction. Nevertheless consideration of other contextual evidence supports the inference of a naming/stating strategy. For example, the adult's response is particularly informative about the concept of glass and there is general evidence of this child's regular testing of the category boundaries

of materials such as metal and glass.   Taken together with the fact that he does not try to regain his mother's attention (which he loses immediately after this sequence), these considerations do support the hypothesis that a naming/stating strategy is being used here.

The following example shows how the various criteria may be reasonably satisfied:

I. On Wednesday he ate through one, two, three plums and he was still hungry. [Reading from a book, both looking at a picture of three plums]

P. Ja.

I. On Thursday he ate through -

P. Where's the other plum?

[Looking at the picture]

I. There's the other plum.

P. There's the other plum.

[Pointing]

I. That's right. One, two, three plums. You see, that one's got a leaf on.

P. Mm.
That one hasn't.

And there's a plum!

I. No, silly, those are the strawberries, not plums. And these are?

Here P.'s utterance, "there's another plum" is not simply a repetition of the investigator's utterance, since it is accompanied by pointing to a picture of a plum.

Directedness is well established, particularly by the prior question, "where's the other plum?" This is a clear request for assistance in matching the name to its pictorial representation. Greenfield's criterion of at least two points is fulfilled: "Where's the other plum? ... "There's the other plum" ... "and there's a plum!".

The conditions of satisfaction appear to be fulfilled by I.'s confirmation and elaboration of P.'s statement, since this is followed by an assenting utterance and a continuation of the interaction in the slightly different direction initiated by her pointing out a leaf. This is not to say that P. is now completely satisfied that he fully understands the use of the word "plum". (That he does not is clearly indicated by his later incorrect naming of a strawberry as a plum.) The child should never be viewed as engaging in exactly the same type of activity as an adult consulting a dictionary. In doing so the adult is looking for a reasonably comprehensive definition and guide to the use of a word. The young child should rather be seen as working gradually towards the meanings of words by slowly

establishing the boundaries of their use. When the adult consults a dictionary she already possesses a large amount of semantic and conceptual knowledge into which the dictionary definition can be assimilated. This is clearly not the case with the young child, whose testing of language is part of the process of building up such a semantic and conceptual network.

The notion of conditions of satisfaction refers to the idea that one participant in a conversational interaction accepts the other's response to his utterance as indicative of successful communication. In the child's case, even a minimal degree of confirmation, elaboration or correction of his utterance may be acceptable. Viewing the child as slowly establishing word meanings and category boundaries, it may well be easier for him to assimilate small amounts of information about different aspects of a word's meaning.

The notions of overextension and underextension are obviously relevant here. In the case of the above example, P., having shown himself capable of applying the name "plum" correctly in one instance, overextends the use of this word to include a picture of a strawberry. Taken by itself, this example would

appear to support Clark's semantic feature hypo-
thesis.

As far as mutual awareness is concerned, this is
partly established by P.'s apparent acceptance of
I.'s response as discussed in relation to conditions
of satisfaction.   Looking more closely at I.'s
understanding of P.'s statement, "There's the other
plum", it is clear that this utterance is not taken
purely on its sentence-meaning.   That is, it is not
interpreted purely on the basis of its propositional
content and sentence structure, but is rather res-
ponded to as a request for confirmation and elabora-
tion.   The difference between these two interpreta-
tions can be seen clearly if one considers
Griffiths' (1979) discussion of statements.   Accor-
ding to him there are three important things about
statements:

- their specific purpose is the communication
  of information (the propositional content)

- this content is presented as true

- the speaker should believe that the content
  is likely to be news to his hearer.

Only the second of these applies to the utterance,
"there's the other plum".   All the contextual
information relating to this utterance suggests that

its specific purpose cannot be seen as the communication of information, nor can the speaker be regarded as believing that the content of his utterance will be news to his hearer. Clearly this is some other form of communication than a statement, and Grice's distinction between utterer's meaning and sentence meaning indicates how this might be so.

It could be suggested that the adult responds with confirmation and elaboration "simply because minders tend to see themselves as general want satisfiers" (Levinson 1983 : 282). The importance of some motivation of this type must not be underestimated in considering the facilitative role of the adult in the process of language development. However this aspect of the language-transmission partnership has been given considerable attention in the literature to date, and the aim of this study is to emphasize the role played by the child. It is accepted that it is because parents treat certain utterances as requests, that young children are able to discover the force of what they are able to utter (Griffiths 1979). However it follows from this that once this discovery has been made, one can no longer view the child as being unaware of the force of such utterances. It is with the child who has made this discovery and is engaged in developing it and putting

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it into practice, that the present study is concerned.

One other possibility which presents itself in examining instances of naming or stating, is that of overlapping or dual purposes. The simplest example of this can be seen in the distinction between the intention to communicate and communicative intention (Greenfield 1980). In any speech act (to use Searle's terminology), both of these features will be evident, although one is likely to be subordinate to the other. In the young child in particular it could be argued that his goal is often simply to maintain communication, while attainment of the mature speaker's goal is usually dependent on the specific effect of his utterance on his hearer. Nevertheless, provided the child is using language and not just babbling, he will be maintaining communication by means of the effect of his utterance on his hearer, while the adult's intention to communicate is a necessary prerequisite for the fulfilment of his communicative intention. If one talks in terms of plans, one goal may be subordinate to the other, yet both must be incorporated into the plan if the main goal is to be attained. However the idea of maintaining communication as a goal in itself is only one example of this.

In the present study it was found that the use of language to learn more about language often arose in the course of pursuing another goal, for example:

P. You open one   [Showing I.
   window.   an advent
                          I. Every day?   calendar]

P. Mm.
                          I. Until?

P. Until, until that
   - other part of
   advent.
                          I. Oh, til
                             Christmas.

P. You open this
   door, door at
   Christmas.
                          I. Mm, that's
                             very exciting.

P. And there go the
   wise men.

Here the child's primary purpose is clearly to ans-
wer the adult's question effectively by providing
her with the relevant information.   However in the
course of pursuing this goal, another sub-goal is
set up in the search for the word "Christmas".   The
child pursues this secondary goal by using a
variation of the naming/stating strategy - being
unable to find the correct word, he substitutes an
alternative description, which has the effect of
eliciting the word he was seeking.   The inference
of this secondary goal is supported by what follows.
For the child's initial purpose is fulfilled in that
the required information is communicated to the
adult.   Yet both adult and child continue the

interaction in such a way that the child is provided with, and takes up, the missing word.

In other instances a word may be overextended in the attempt to communicate certain information, or to recall the correct word used previously by an adult, for example:

P. What's this
   brown stuff?

        I. What brown stuff?

P. That.

        I. That - it looks
   like a freckle.
   See, I've got them
   all over.

P. I've got one.

        I. You've got one, and
   you've got one on
   your face there.

P. I haven't.

        I. Yes you have.

P. No I haven't.

        I. Yes you have.
   Do you want to see?

P. No.

        I. Okay.

[Short conversation between P.'s brother and I.]

P. ... five, six,
   seven, eight,
   nine, ten, ...
   eleven.

        I. Mm!

P. It's eleven.

        I. What's eleven?

P. Mm.

        I. Eleven what?

P. Um - eleven -
   eleven blisters.

        I. Eleven blisters!
   You had eleven
   blisters?!

P. And I've got one
   there.

                [Pointing to
                   a freckle]

        I. That's a freckle.

P. Oh.

I. See, like I've
   got all over my
   arms. Freckles.
   H.'s got hardly
   any freckles.

H. I've got a few.

I. You've got a few,
   mm.

H. There and there.

I. Oh yes.

H. And I've got a few
   on my face.

P. Look what
   happened to me.
   ...

P. Freckle, freckle,   [To himself
   freckle.   while H.
                               talks to I.]

P.'s hesitation in answering I.'s question, "What's

eleven?" suggests a search for the appropriate word,

which is terminated by the offer of "blister", an

offer which has the definite appearance of a "best

guess".

Smith, Shoben and Rips' Feature Comparison Model

could be adapted to show how such a search might

operate (see Figure 4 below).   While this study was

not generally concerned with the analysis of this

type of cognitive processing, the relationship

between semantic memory processes and verbal

information-gathering strategies is necessarily a

close one.   The following analysis explores this

relationship briefly.   Figure 4 represents the two

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decision stages involved in the speeded verification
of Subject-is-Predicate statements such as, "a robin
is a bird".

Read Sentence, Encode,
Retrieve Features

Stage I

Compare all features
of Subject and Predi-
cate to determine
featural similarity

Low
Similarity

High
Similarity

Intermediate
Similarity

Stage II

Compare defining
features of Predi-
cate to those of
Subject

Mismatch

Match

Sentence
false

Sentence
true
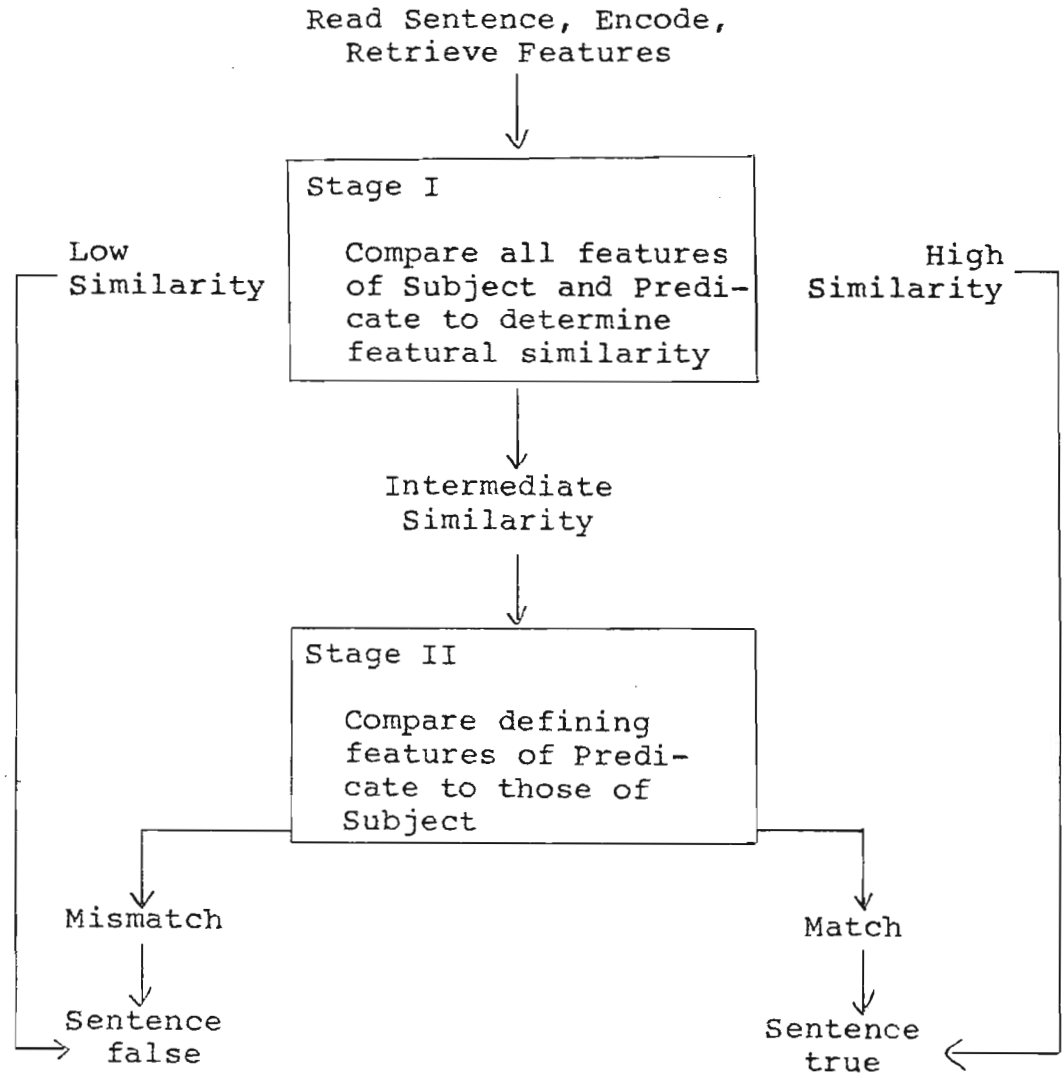
Figure 4: The Feature Comparison Model of Smith,
Shoben and Rips (1974)
(in Lachman, Lachman and Butterfield
(1979 : 330)

Figure 5 indicates the possible stages involved in
the case of a young child deciding whether a name
may be appropriately applied to an object (for exam-
ple, P. deciding whether the brown spot on his skin
may be called a blister).

Look at object, encode,
retrieve (perceptual)
features

Search semantic memory
for words associated
with a concept having
similar features

On locating such a word,
Low   test by comparing all   High
similarity   features associated with   similarity
                        that concept, with those
                        of the perceived object

Intermediate similarity

Compare defining
features

Mismatch   Match

Reject word,   Accept word,
reinstitute   exit from
search   search

Figure 5:   Model of stages involved in determining
            an appropriate name for an object

Smith, Shoben and Rips' model has been criticized

for failing to specify how the individual divides a

word's semantic features into "defining" and "acci-

dental". However the theory is not designed to

show how the correct decision rule may operate. It

rather aims to account for the decision rules which

people actually use, and "a psychologically

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acceptable decision rule can be probabilistic, as are elements of the theory by Smith et al." Lachman, Lachman and Butterfield 1979 : 332). In the case of the young child, the search of his rather limited semantic memory is unlikely to be as efficient as an adult's would be, and his decision rules for selecting and comparing defining features are probably equally crude. Nevertheless these activities must be taking place, or the word "blister" would not be offered at all. In addition, the speed with which it is offered indicates that the crudeness is only relative to the adult since a considerable degree of efficiency in these processes must have already been attained.

The above interpretation is compatible with much of Clark's account of the early development of meanings of lexical items in the Semantic Feature Hypothesis. However, Smith, Shoben and Rips do not share the view of defining features as a specific set of critical features, for which Clark has been criticized (Atkinson 1982). Their theory posits flexible conceptual structures and is therefore complementary to Rosch's notion of prototypes (Lachman et al. 1979). As suggested previously, this type of approach which views semantic categories as based on degrees of membership appears better able to accommodate the complexity of semantic development.

The goal of learning more about language is probably more incidental here than in the previous example, for P. does appear fairly well satisfied with "blister" as the result of his search and seems surprised ("Oh.") to be corrected. However his attention does appear to have been at least par- tially redirected to the question of naming and the subsequent interaction conforms to the pattern of the naming/stating strategy. P.'s utterance, "and I've got one there", could well arise from his perception of I.'s surprise at his initial statement. For young children an adult's surprise at one of their utterances must often signal that something is wrong with their utterance and that communication has been unsuccessful because of this. In such a case saying, "and I've got one there", and pointing to the thing in question, is a very effective way of eliciting confirmation, correction or elaboration and this is just how it is taken up by I. That the child's attention has been directed to the question of naming is further confirmed by his muttering, "freckle, freckle, freckle", to himself.

This repetition of words by the child was found to occur frequently in all three subjects. In one sense this may be considered an example of the use of language to improve one's linguistic ability,

whether through practice of sounds or through an
attempt to commit the word to memory.   However it
was not included in the analysis as there is no
interaction, informative feedback or testing of
hypotheses involved.

Nelson (1973) suggests that:

> Repetition can be conceptualized as <u>practice</u>,
> as <u>self-imitation</u>, or as emphasis in the
> service of communication.
> (Nelson 1973 : 53)

However she concludes that the last aspect of repe-
tition is most characteristic of adult speech in
adult-child interaction, and that the child's use of
repetition is usually best conceptualized as play.
She further notes that repetition, like imitation,
is most useful for language development during the
early stages of that process.

The naming/stating strategy identified in this study
is perhaps the most obvious example of what Nelson
calls "production":

> When production is viewed as a strategy for
> problem solving, it takes on the character-
> istics of a match-to-sample game.   In using
> his available words the child (a) practises
> their phonetic production, (b) tests his con-
> cept domains against those of the language
> users around him, and (c) uses the language
> for communication purposes.
> (Nelson 1973 : 46)

As with the present study, the aspect of phonetic
practice was not analyzed by Nelson.   She addresses

herself to the general question of the function of

overt testing in linguistic progress and her data

are analyzed to determine whether a high response

rate (on the part of the child) is associated with a

faster rate of acquisition.   She concludes simply

that:

> ... verbalizing a lot (in this situation)
> appears to be a strategy that is positively
> related to all aspects of learning to talk,
> at least during the second year.
> (Nelson 1973 : 47)

Production as described by Nelson is hardly a stra-

tegy in the sense used in the present study and as

she points out herself, her data do not make any

further conclusions possible (for example whether

production actually contributes directly to language

learning, or whether it can simply be said that a

high rate of production is typical of more advanced

talkers).

The establishment of directedness, conditions of

satisfaction and mutual understanding has been

described in some detail in the preceding discus-

sion.   This having been illustrated, these

criteria will only be mentioned during the rest of

the discussion where a specific point is to be made.

(iii)   METAPHORIC USE OF LANGUAGE

Another strategy which could be seen as a type of

production, depends on the metaphoric use of

language. All three children were observed to use
this strategy, although differences in style were
apparent. "Metaphor" is used here in its more
general sense where metaphoric expressions are seen
as pervading all language, even the most literal
(Paivio and Begg 1981). Linguistic metaphor may be
defined as:

> ... the application of a word or expression
> that properly belongs to one context to
> express meaning in a different context
> because of some real or implied similarity
> in the reference involved.
> (Anderson 1964 : 53, quoted in Paivio and
> Begg 1981 : 274)

This strategy may be seen as a way of working to-
wards a mastery of language by "playing" with words
and their meanings. However it should not be
viewed simply as practice play, as repetition might
be said to be. For the metaphor strategy occurs in
the context of interaction and confirmation, and
correction or elaboration from adults plays an
important role. Many discussions of play with
language focus on sound, word or linguistic struc-
ture practice in the context of monologue (e.g. Weir
1976 [1962]), for example where the child utters
strings of nonsense syllables when alone in a room,
or combines words and nonsense syllables arbitrarily
in a chant.

The following example shows how the metaphor

strategy, on the other hand, takes place in the

context of communication:

N. Um, I can see
   moon.
                        M. Oh yes.

                        I. Oh there it is.

                        M. Ma. - oh I see,   [To Ma.]
                           you can catch.
N. I can throw that,
   that, that ball,
   and catch the
   moon like that
   on the grass.
                        I. Really!

N. Ja.
                        Ma. I wanna show her.

                        I. You'll have to wait
                           till it's a full
                           moon, when it's
                           round.
N. Ja.
                        I. That's best.

                        Ma. Look here!
                            Look here!
                            Look here!
N. Then I'll bounce
   it - ah **

Here the fulfillment of the criterion of mutual

awareness (in terms of meaning-nn) is particularly

evident in the way the adult takes up the metaphor.

This indicates to the child that she has perceived

and agrees with the similarities between the ball

and the moon, on which the metaphor is based.

Although all the strategies involve learning through

the manipulation of the verbal environment, this

idea of learning through manipulation takes on a particular focus in relation to the metaphor strategy. For, not only is the child manipulating the verbal environment by certain patterns of word production, he is also performing "internal" manipulations on word meanings. The above example suggests that N. is capable of identifying relevant features of objects, not simply in such a way as to be able to recognize or refer to those objects, but in a way which enables him to manipulate or "play" with the symbolic representations of these features. In this way he is able to compare and match the features of various objects, while still recognizing these as different from each other.

It may at times be difficult to distinguish between metaphor and overextension but a careful consideration of contextual information reveals many instances where the child is clearly not overextending the meaning of the word, for example:

P. And I'll throw
    this rock at
    the, at the
    rain.
                        I. Mmhm.
P. I can throw as
    hard as I can.
    Throw there!
                        I. That's very far.
P. Ja, very far.
    That's how you
    stop the wind.

```
P. I get another                        [The first
   rock.                                 was a rock,
                        I. That's a funny  the second
                           looking rock.   a stick]

P. It's a stick
   rock.
                        I. A stick rock!
```

In several instances of the use of this strategy,
directedness proved difficult to establish, and the
adults' understanding of and response to the child-
ren's utterances proved of particularly valuable
assistance for the analysis. This appears to be a
more complex strategy than the first two discussed
(and may in fact comprise a number of potentially
distinguishable strategies), and many of the clues
to its accurate interpretation are probably too
subtle to be easily captured on audio-tape, let
alone in a written transcript.

In most instances the metaphor strategy is used by
N. and Ma. in the context of play with objects, for
example:

```
                        I.  Hey! What'     [N. is play-
                            you doing?      ing with
N. Bottle.                                  plasticine]
   A bottle.
   A bottle.
                        I.  A what?

N. Bottle.
                        Ma. It's a bottle
                            of muti.

                        I.  A bottle!?     [Resemb-
N. Mm.                                      blance to a
                        I.  Oh, I see.      bottle is
                            Is that the     very
                            lid?            slight]
```

Ma. A bottle of
                                            muti, yes.
N. Mm.
   Oh **
                              I. I see that, now
                                  it's not a
                                  bottle any more.

The following example from the same context shows

how the child's metaphor may be rejected by an

adult:

N. I'm going to
     scunch this   [Plasticine]
     ballie up.
   Scrunch, scrunch.
                              Ma. He's going to
                                  scrush it.
N. Scrunch, scrunch.
                              I. Then it won't
                                  be a ball
                                  any more.

N. See.
                              I. What is it now?
N. It's a *-up
     ballie.
   It's a rubber
   band.
                              I. It's a rubber band?!
                                  Doesn't look like
                                  anything to me.

This type of activity on the part of the child is

comparable to Piaget's notion of imaginative or

symbolic play, which is distinguished by him from

the practice play of the sensorimotor infant and the

rule-governed play of the older child. Symbolic

games depend on a comparison between a given and an

imagined element and therefore require representa-

tion of an absent object. Also implied is make-

believe representation, since the comparison is

"distorting assimilation" (Piaget 1962 : 111), as opposed to the generalization involved in concept formation.

However in most instances the metaphor strategy does not appear to conform to Piaget's view of play as "the extreme pole of assimilation of reality to the ego", even though he does allow that it "has something of the creative imagination which will be the motor of all future thought and even of reason" (Piaget 1962 : 162).

This incompatibility arises from Piaget's view of symbolic play as situated firmly within a particular stage of development, that is at the beginning of representational thought.   Piaget makes it clear that he is referring to a particular type of sym-bolic play, the typical make-believe games of the young child.   Apart from examples such as the last, the type of play with symbols which is involved in the metaphor strategy is more like Piaget's notion of constructional or creative games in the sense that these:

> ... are not a definite stage like the others,
> but occupy, at the second [representational]
> and more particularly at the third [reflective]
> level, a position half-way between play and
> intelligent work, or between play and
> imitation.
> (Piaget 1962 : 113)

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Perhaps even this fails to do justice to the importance of a strategy involving the metaphorical use of language. It has been argued that metaphor is:

> ... the distillation or essence of what is
> creative about creative thinking. Joking,
> imaginative play, dreaming, and even percep-
> tual naming: all may be regarded as built
> essentially on the human capacity for metaphor.
> (Sharratt 1983 : 18)

Elements of several of these activities appear to be involved in P.'s use of the metaphor strategy, for example:

P. Who are Catherine
   and Anthony?
                        M. Well, they live
                           in Westville.
P. And they're
   children.
                        M. Yes.
P. And they're
   yellow.
                        M. Are they?
P. Ja.
                        M. Yellow?
P. Ja!
                        M. Yellow like who,
P. Like paint.
                        M. You're a funny * [P. & M.
                           sometimes you   laugh]
                           know.
P. Mm.

P.'s use of the metaphor strategy, as illustrated here, often bears a remarkable similarity to Kelly's way of testing hypotheses about language (Horgan 1981). The above example may be based on some perceived but unexpressed similarity, or it may be an instance of the type of violation of semantic

categories described by Horgan.   Certainly it is

regarded as humorous by both P. and his mother.

This points to an important function of play as a

way of achieving mastery within a context where

reality is suspended to a certain extent.   In the

context of play and joking the child may practise

and manipulate language without the normal conse-

quences of being shown to be wrong.   These consequ-

ences may not appear very threatening to an adult,

but often are to a child - consider N.'s distress at

his brother's insistent correction when he named a

rabbit a mouse (see p. 170).

Bruner's account of the functions of play refers to

this minimizing of the consequences of one's actions

which enables the child to learn in a "less risky"

situation (1976 : 38).   Related to this is the

opportunity which play offers the child, to try out

combinations of behaviour (and semantic relations)

which would be unlikely to be attempted under

functional pressure (Bruner 1976 [1972]).

That this type of language game was encouraged by

(and in fact probably originated from) P.'s parents

is evident from interactions initiated by the

parents themselves, for example:

P. ... have things
    on my feet.

```
                              F. All right, I'll
                                 put things on
                                 your feet for you.

P. Um, then I'll
   walk in the T.V.
   room.
                              F. How about some
                                 banana skins?

P. Okay.
                              F. Do you want
                                 banana skins on
                                 your feet?

P. No.
                              F. Oh. What sort of
                                 things do you
                                 want on your feet?

P. Sandals.
                              F. Sandals, okay,
                                 sandals it'll be.
                                 You go and find
                                 your sandals.
```

Since P.'s father is a linguist, the similarity to
Kelly's language testing strategies is perhaps not
so remarkable, for a focus on language and its play-
ful manipulation is a central part of the environ-
ment for both children.   This focus can also be
seen clearly in the other strategies attributed to
P.

Paivio and Begg, who believe that metaphor is an
area seriously neglected by psychologists, suggest
that the reasons for the use of metaphor must be
pragmatic, "referring to the verbal behaviour of
individuals in communicational contexts in which
metaphor must serve some essential functions"
(Paivio and Begg 1981 : 273).   They suggest that
metaphor is an efficient way of conveying continuous

experiential information using a discrete symbol system.   If this is accepted as an important function of metaphor in the context of adult communication, it seems likely that metaphor would be a useful way for children to explore ways of making the connection between continuous experiential information, with much of which they are familiar, and the discrete symbol system of language, which they are in the process of learning.   The following delightful example of metaphor illustrates this well:

N. Down.
   Down chickens.   [Looking into
   I call the   a box of
    silkworms   silkworms]
    chickens.
                         I. Mm.
N. I call -
                         M. You call them
                            chickens?
N. Yes.

This rather startling connection becomes clearer on considering that there are only two groups of "caged" animals to whom N. pays daily visits.   Both the chickens at the bottom of the garden and the silkworms in their lidded shoebox, tend to head for freedom as soon as N. opens the door to the run or the lid of the box respectively.   Knowing that he is not supposed to let the animals out, his typical response is "down".

This example also illustrates very clearly the importance of Nelson's warning that:

> The child may direct his attention to situations ignored by the parents; he may form concepts based on relations salient to him which are not coded by the adult language.
> (Nelson 1974 : 279)

It is obviously necessary for a theory of concept formation to account for the incorporation of functional-relational information into the developing concept. This is of course why Nelson and others reject theories such as Clark's (1973) which focus almost exclusively on the coding of perceptual-descriptive information.

A careful consideration of memory factors would be necessary to understand how metaphors are developed and the metaphor strategy put into operation. In fact metaphor is studied by cognitive psychologists in terms of the field of semantic memory, since metaphor is seen as a problem of meaning requiring the association of information in long-term memory with the terms of the metaphor (Paivio and Begg 1981). Clearly both the construction of metaphors and the use of the metaphor strategy will depend on the efficient operation of working memory. It is here that information reactivated from long-term memory can be compared with incoming perceptual information and manipulations and abstractions

performed.   The resulting metaphor can then be
expressed and tested against incoming feedback from
a mature speaker.   Again this testing process would
take place in working memory, with additional infor-
mation being called up from long-term memory as
necessary.   This is of course similar to what hap-
pens in the use of any of the strategies, but the
manipulations are probably more complex here.

A serious problem which was encountered in relation
to the identification of instances of this strategy,
was the difficulty in distinguishing its use from
imaginative play not involving the gathering of
linguistic information.   Often, as in the following
example, both the child and the others with whom he
is interacting, appear to be focusing on language:

[N. cups his hands, holding a small lump of
plasticine]

N. Look a little
   tiny nest.
                        I.   A little tiny
                             what?
N. Nest.

                        M.   Net.
N. * look at those
     poor little -
                        M.   Oh, a nest!

                        I.   Yes, yes.

                        M.   Oh, I didn't
                             realize.
N. Who wants to
   come in?

                        I.   Hm?

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N. Who wants to
   come in?

                        I.   I want to come
                             in.

N. No.
   There's a parrot
   inside here.

                        M.   There's a
                             parrot!

N. Ja!

                        M.   Oh.

N. Nest parrot.

                        M.   Really!

N. Ja.

                        Ma. Will he fly away?

N. Ee - ja!
   He flow away.
   Up in the tree.

                        Ma. I wanna see him.

                        I.   Mm. So he isn't
                             there any more?

N. Uu -

                        I.   Isn't he in the
                             nest any more?

N. Oh, think this
   parrot, think
   this parrot are.

                        M.   You think it are!
N. This parrot *.   [N. makes
   See?   a noise]
                        I.   No, I don't see,
                             but I hear.

                        M.   Ma., that's making
                             a horrible snap-
                             ping noise.

N. Look - parrot
   back inside
   here.

                        I.   Oh, back inside
                             there now.

N. Ja.

                        I.   Must be pretty
                             squashed.

                        Ma. I want to see it.

N. Oh.

                        Ma. Hum! I ate the
                             parrot up.

N. Oh.

                        Ma. You can make
                             another parrot.

N. Oh!

M. Ah. N., can you
and Ma. do this
puzzle?

Ma. I, I put the
parrot back again.
I made another
parrot.

N. 'n, that's my
ballie.

Ma. No, your nest.

N. 'n, 'n, where's
my parrot, my
* parrot?

I. You can make
another one.

N. Mm.

Ma. He's just a bluff
bluff - he's just
a bluff bluff
parrot.

I. What d'you say to
that, N.?

I. What is it then?

N. Tisn't a bluff
bluff parrot.

N. It's a big
parrot.

Ma. Is it a real one?

N. Ja!
Tis!

Ma. Ha, a - thought you
were going to say
ja tis!

N. Made a big crab.
Made a big crab.
Made a big crab.

M. A big crab?

N. Ja.

However, many exchanges which may well have involved

instances of the metaphor strategy were excluded as

being difficult to substantiate. This was parti-

cularly the case with P., where both the investiga-

tor and her colleague believed there to be many

instances of the use of this strategy, but

insufficient information to distinguish these from other types of imaginative play. Another reason for excluding several possible instances of P.'s use of this strategy, was the context in which they occurred, that is, P. being read to by an adult, while both looked at the book. This was an activity in which he engaged regularly and which was a context of rich and varied conversational exchanges. However P. was very familiar with most of the books read and during analysis it became clear that many of his utterances were probably repetitions of comments made on previous occasions by adults or by his brother. This is something which it is always extremely difficult to control for, but some attempt could be made to do so by providing a child with material which his caretakers believe to be novel to him.

Since the production of metaphor can be so difficult to identify in young children, it is understandable that most of the psychological studies in this field have tended to focus on comprehension rather than production, just as Horgan (1981) notes studies of the development of linguistic humour have done. While an understanding of how metaphors are processed and comprehended is very important, it is equally important to understand their function in both child and adult speech. From the examples given,

it seems one function of metaphor production is the testing of newly acquired meanings in a communicative interaction.

(iv) <u>SELECTIVE IMITATION</u>

Selective imitation is defined, following Snyder-McLean and McLean (1978), as spontaneous, immediate and overt verbal imitation of another's utterance/s. All three children were found to imitate all or part of another's preceding utterance in this way to elicit confirmation that they had heard and reproduced the utterance correctly, for example:

(a)

	Ma. I'm mixing it.	[Biscuit mixture
	M. Aha, got it.	in a bowl]
	Ma. I'm mixing it.	
N. Mixing it.	I. There's a bit on your side there N.	
	M. Look at all that flour down there. Mix it in so it gets all damp with the other.	

(b)

I. Ha! Look at these eyes!

Ma. Here, I'll show you what's in that book.

I. They're funny, hey.

Ma. There's some more
                                        eyes.

                                    I. Mmhm.

N. Ah, there -
                                    I. Look at your
                                        fingers, M.| Hm?

                                    Ma. No.
N. There's more
   eyes.
                                    I. Turn it this
                                        way so N. can
                                        see too. Come
                                        and sit here.

N. There's, there's
   more eyes here.
   Both of them got
   more eyes.
                                    I. Mmhm. ** the
                                        rest of it.

                                    Ma. ** no more.

                                    I. I love Swiss
                                        cheese, says
                                        little mouse,
                                        the train man
                                        brought some
                                        to my house.

                                    Ma. But there's -

                                    I. I'm tangled up
                                        as I can be says
                                        pussy cat, who'll
                                        set me free?
                                        Tangled up in
                                        what?

                                    Ma. Wool.

                                    I. Mm.
N. Go-d-eyes.
   These are dyes.
   These are dyes.
                                    I. Eyes, ja.
N. That's a mousie.

(c)

                                    I. And this is?
P. That's my ruler.

P. Mm.

P. Yes.

P. Yes.
   Um, measure in
     centi -
     centimetres.

I. Oh, I remember
    you told me
    yesterday.

I. Measures in
    inches and
    centimetres.

I. That's very
    handy.

This activity is not really considered to constitute

a strategy for testing hypotheses about language

(Snyder-McLean and McLean [1978] make this point

when they distinguish it clearly from metalinguistic

utterance production).   For this reason, and be-

cause it is not regarded as an important means by

which language may be used to enhance the child's

linguistic ability, selective imitation will not be

discussed in as much detail as the three preceding

strategies.

Nevertheless, selective imitation is one way of

using language to improve one's understanding of

language and unlike the child's repetition of his

own utterances, it does take place within the con-

text of communication.   It arises out of another's

communicative intent, and although not usually well

integrated into the conversation, may form the basis

for further interaction as in example (b) above.

This example does in fact show some of the

characteristics of the hypothesis-testing strategies

in its directedness and conditions of satisfaction.

Another such example follows:

[N. is engaged in interaction with M., where objects
are being picked out of a basket, named and commen-
ted on.]

N. Ah, there's a –
   There's your, my –
   There's a little
     tiny pin.
                          M. Oh, that's a tiny
                             one. Must be for
                             a small dolly.
                             Let's see what else.
N. Must be.
                          M. Must be.
N. Must be.
                          M. What is this?

It is interesting to note that selective imitation

is not used a great deal by any of these children,

the most regular use being by the youngest child

(N. 2,39: Ma. 0,67: P. 1,51).   This finding could

be explained by Nelson's conclusion that the useful-

ness of selective imitation as an "accommodative

strategy for the problem of acquiring and expanding

vocabulary entries" (Nelson 1973: 51) does not carry

over to the period when the child is engaged in

sentence building (from about twenty-four months).

This notion of an accommodative strategy is derived

from Piaget's concept of accommodation, and Nelson

distinguishes it from that of an advancing strategy.

Selective imitation never appears to function as an advancing strategy for language development, that is, it does not operate as a mechanism for acquiring new and more complex linguistic structures (Clark and Clark 1977).

However Snyder-McLean and McLean (1978) cite evidence which suggests that imitation is a particularly effective strategy for furthering a child's mastery of words with which he is already familiar, and conclude that children will only imitate utterances (or parts of utterances) which have some meaning for them.

Snyder-McLean and McLean (1978) also cite several other studies from which they conclude that while overt, spontaneous verbal imitation does not appear to be a necessary nor a sufficient factor in language development, the systematic and strategic nature of this normal accompaniment to early language development is greater than "previously recognized" (Snyder-McLean and McLean 1978 : 313).

This "previously recognized" refers to the psycholinguistic tradition in the study of language development, since the behavioural learning theorists saw imitation as playing a central role in language learning. In fact the theoretical controversy between linguists and psycholinguists on one hand,

and the proponents of behaviourism on the other, is typified by their respective views on the role of imitation in language development. In pointing out the creative nature of language, Chomsky showed how associationist principles fail to account for the fact that we can understand and produce sentences we have never heard before. S-R conditioning theories of language necessarily give considerable weight to repetition and practice in language learning, and therefore have great difficulty in accounting for the potentially infinite number of sentences which the mature speaker can produce or understand (Lachman et al. 1979).

One of the earliest and most conclusive arguments against assigning a central role to imitation was put forward by Brown and Bellugi (1964), who noted the frequency in early language of such utterances as, "A this truck", "You naughty are", and "Put a gas in."

It may well be, as Snyder-McLean and McLean (1978) suggest, that the study of covert and deferred imitation is important for an understanding of the dynamics of language development. However the methodological difficulties inherent in such a project are rather daunting.

2.2.3 INDIVIDUAL STRATEGIES

It was suggested in Part I that individual differences were likely to play an important role in the aspect of language development under study, and in fact not all the language testing strategies identified were common to all three children.

N. AND MA.

N. and Ma. were found to use two strategies in addition to those discussed previously. It is not really surprising that these two strategies are shared by the brothers but not by P., given the assumption expressed earlier about the caretakers' role in developing such strategies. However one might expect some individual variations between the brothers in the use of these strategies.

(i) ASKING QUESTIONS NOT DIRECTLY RELATED TO WORD MEANINGS OR NAMES

On the initial scan of the data it was noticed that both children frequently asked questions such as, "where is x" in situations where the context suggested that a direct question about names or meanings would have been more appropriate. On closer analysis, the interactions surrounding many of these questions were seen to conform to a similar pattern, the main elements of which are:

- An impression of the question as being inappro-
  priately phrased (as evaluated by the investiga-
  tor during analysis).

- Evidence of directedness in pursuing an under-
  standing of a certain word.

- Conditions of satisfaction suggesting that the
  required information related to naming or word
  meaning rather than the type of information
  apparently requested.

- Response from an adult indicating that the ques-
  tion was at least partially interpreted as a
  request for information about names or meanings.

For example:

(a)

N. Mummy, where -
   where'd that
   come from?

        M. That's to fill
           up these, it's
           a little funnel.

N. Oh, little
   funnel?

        M. Mm. What d'you
           do with a funnel?

N. I don't know.

        M. Yes you do, what
           do you do with
           a funnel?

        Ma. Look here, I did
           that one!

[Change of topic for approximately ten minutes.]

        M. What do you need
           to put in the
           funnel?

N. This.

                    M.   The flag?

N. Ja.

                    M.   What do you - when
                         you sit in your
                         bath, what do you
                         put in the funnel?
                         Do you put water?

N. nn.

                    M.   You going to put
                         the flag in there?
                         Oh.

N. nn.
   nn.

                    M.   You can if you want
                         to.

In this example the mother clearly interprets the

interrogative utterance, "Where'd that come from?"

as a request to provide a name for the object and

goes to some lengths to elaborate on this.

(b)

N. Mummy pu -   [Holding out
   Mummy pour this   a packet of
   in a cup.   nuts]
                    M.   Pour it in a
                         cup?

N. Mm.

                    M.   It looks as if
                         it's got goggas   [insects,
                         in it, N. No,   worms]
                         it's old, N.

N. Why?

                    M.   It's got goggas
                         in it. Mummy'll
                         pour this one
                         in. It's got
                         some little
                         worms in.

N. Oh.

                    M.   This one's all
                         right. Almonds.

Although directedness cannot be established in this example, the mother's explanation of the term "goggas" shows that N. was perceived as not having understood the term. "Why" does seem to be an inappropriate follow-on from two explanations as to why the nuts are being rejected. In addition, N.'s purpose appears to have been satisfied once the term "goggas" has been substituted with more familiar words. However this last point cannot be conclusive, as the child has also been offered a substitute for the original packet of nuts. Were his purpose to oppose his mother's rejection of the nuts, this offer of a substitute could well present the conditions of satisfaction for that purpose.

Nevertheless, taken together with other similar interactions, this type of question does appear to constitute a strategy for eliciting more information about word meanings. Another example follows:

[M. is reading to N. and Ma. from a book.]

M. Ah look, what
    kind of clock
    is this? With
    a little bird
    jumping out of
    it?

Ma. Like Philly's   [Philly is
    bird.   the small
                       boy who
M. Yes, what's it   lives next
    called? What   door]
    does it say when
    it comes out?

N. Like Philly's
   bird.

                          Ma. Dang!

                          M. No - cuckoo,
                             cuckoo.

N. Cuckoo, cuckoo.

                          M. So that's a
                             little cuckoo
                             clock, it's
                             called a cuckoo
                             clock, cause
                             that little bird
                             says cuckoo when
                             it comes out.
                             Remember you
                             heard Philly's
                             clock.

N. Mummy whe -
   Philly's tuckoo
   duck?
   Where's it?

                          M. In his house.

                          Ma. Mum, read me this
                              one.

   ...

                          M. ... he loved his
                             little donkeys
                             cause they used
                             to play - Meenie,
                             Mynie and Mo.

N. Who's -
   Where's Meenie,
   Mynie Mo?

                          M. There - donkeys.
                             Meenie, Mynie and
                             Mo. Three little
                             donkeys.

N. Where's Meenie,
   Mynie Mo?

                          M. They've just
                             wandered into
                             town, thought
                             Frankie.

N. Mummy, where's
   where's Ma -
   Where's Philly's
   duck?

                          M. Philly's clock?
                             In his house,
                             on the wall.

```
N. Where Philly's
   duck in a
   where's -
   Where's it?
                              M. His what?
N. Duck.
                              M. His duck.
N. Mm.
                              M. He hasn't got
                                 a duck - you
                                 mean that little
                                 toy duck?
N. Ja.
                              Ma. That cuckoo *.

                              M. I think it's in
                                 his toy cupboard.
```

Again the overall context of this interaction sequ-
ence suggests that the sought-after information is
not really related to the physical location of the
cuckoo clock, as the form of the question would
imply.   Certainly the child's purpose is not satis-
fied by the reply, "in his house".   Directedness is
very clear, since a considerable amount of inter-
action intervenes between the question and its reap-
pearance.   The idea (Greenfield 1980) that the best
conditions for establishing intention are when feed-
back is not quickly forthcoming, is clearly borne
out here.   The mother, who is usually quick with an
acceptable response, fails to provide the required
information, probably because of the distraction of
reading.   This failure leads to repetition of the
same question several times, thus clearly establish-
ing directedness.   Because of this failure presen-
tation of the conditions of satisfaction does not,

of course occur, but as a result of the length of the interaction and the constant repetition of the same question form, certain possible conditions of satisfaction can be ruled out.

Memory plays a particularly important role in this interaction and one can infer that N.'s working memory is engaged throughout in attempting to understand the meaning of cuckoo clock. Even when distracted from his questioning to look at the book, the strategy itself appears to be retained in working memory, and operates on the new problem of identifying the donkeys. However once the original problem reasserts itself it appears to have changed form, probably because the unfamiliar words "cuckoo clock" could not be encoded properly. What remains is the familiar word which the child himself introduced into the interaction in his initial attempt to grasp the meaning (and sound) of "cuckoo clock".

When the strategy is again put into operation with this familiar word, it leads to what appears to be more satisfactory feedback, although the mother may just have been more persuasive in her introduction of a new topic. This would perhaps support Searle's idea of intention-in-action (Greenfield 1980), since there is obviously no clear representation of the conditions of satisfaction which could

endure through the diversion. Alternatively this representation of the conditions of satisfaction may simply have been rudimentary and incomplete because of the child's age. Ma., however, remembers the initial thrust behind the question and appears dissatisfied on N.'s behalf with the conclusion of this interaction. This is interesting because Ma. consistently showed a clear understanding of N.'s utterances and their intentions, and on several occasions during the study was observed to interpret these for his mother or the investigator.

One might argue that, although the children's purpose does appear to be to elicit information about word meanings, the use of such questions is simply the result of an incomplete mastery of WH-questions. That it is in fact a strategy in its own right may be argued on the basis of the idea that directly language-oriented questions are not necessarily an adaptive way of learning language (see the above discussion on such questions). A question such as, "what's that?", may elicit a fairly brief and not necessarily informative response, for example a name. This did appear to be the pattern with N. & Ma.'s mother. On the other hand, a question like, "why is x?", will usually result in more informative feedback, since a very brief answer is not as likely to appear acceptable

here, even to the adult. Such a question will also

evoke more elaboration if it is perceived as inap-

propriately expressed. In addition, questions of

the "where is x?" type, asked in the context of

adult-child conversation, are more than likely to

result in the object being pointed out to the child,

and this is a very good source of information.

(ii) N. & MA. : ARGUING/DENIAL

The last strategy to be attributed to N. & MA. could

not be established as satisfactorily as the others,

but deserves discussion in terms of its theoretical

interest, for example:

[The mother has been teaching the children to "read"

by recognizing individual words printed in large

letter on cards. Here she has been demonstrating

this game.]

<div style="margin-left: 40%;">

M. Who knows what
    this one is?

Ma. Leg.

M. No, that was a
    big guess, you
    saw leg just
    now, you know
    that's not leg.
</div>

N. Tis leg.

<div style="margin-left: 40%;">
M. It's not leg.   [Laughing]
    It's mouth.
</div>

N. It's mouth.

While not strictly an instance of testing word

meanings, this example does show how arguing or

rejecting information can effectively elicit further

clarification.   The imitation of "it's a mouth"

suggests that this is the information sought by the

child, who appears satisfied on receiving it.

Such arguing or denial of information provided by an

adult may be used by the child who finds that

information insufficient for his understanding.

Acceptance of such information is far less likely to

lead to further elaboration on that subject than if

the child were to argue about it, for example:

Ma. I know what this   [Shuttlecock]
    is for.
                    I. What's it for?

Ma. For playing
    tennis.
                    I. It's for play-
                       ing a game like
                       tennis, called
                       badminton.

Ma. I know.
                    I. Tennis you
                       actually play
                       with a ball,
                       don't you?

Ma. No, but I saw
    they play
    tennis with
    this thing
    on T.V.
                    I. Ja, it's like
                       tennis, but
                       they call it
                       badminton,
                       instead of
                       tennis, cause
                       you use that.
                       That's a shuttle-
                       cock, and when
                       they play badmin-
                       ton they use a
                       shuttlecock, and
                       when they - ja -

Although there was a reasonable number of sequences which appeared to fit this formulation, directedness and conditions of satisfaction were not easy to establish and other intentions could have accounted for the patterns of interaction, for example:

N. That's a mouse.   [Picture of
                          I. Think it's a a rabbit in
                              mouse?   a book]
N. Mm.
                          Ma. What is?

                          I. That one.
N. Tha' tis a
   mouse.
                          I. Is it a mouse?
N. Mm.
                          I. It's got a tail
                              like a bunny
                              rabbit.

                          Ma. But it is a
                              bunny rabbit.
N. No, tisn't a   [Said
   bunny rabbit.   forcefully
   It's a - it's a   and with
   ma, ma, ma, m -   apparent
   mouse.   distress]

In this example the rejection of feedback could well be motivated purely by the child's need to assert his opinion against that of his elder brother. Perhaps the accompanying emotion is a clue here, since most instances of arguing were fairly good-natured and often terminated on the provision of further information.

The following example combines naming/stating with a type of argumentation characteristic of the nursery

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school-going child, but unfortunately lacks present-
ation of the conditions of satisfaction which would
make it easier to interpret.

Ma. Look, look what   [Picking up
    happens.   raisins with
                                           dough]
                    M. Oh, it picks
                       them up.
                       Is it like a
                       magnet? Do you
                       know what a
                       magnet is?
Ma. Mm, yes, you.
    You' a magnet
    don't you know
    that.
                    M. Mm mm.   ["No"]
Ma. You are a
    magnet.
                    M. Mm mm.
Ma. You are a
    magnet.
                    M. There you are,
                       look, look, N.

Although there were several other such interactions
involving each child, this type of interaction can-
not, in the absence of the two confirming criteria
of directedness and conditions of satisfaction, be
adequately established as a strategy for testing
hypotheses about language.   Nevertheless it is
interesting to speculate on the intuitive usefulness
of such a strategy.

Both this strategy and the last appeared to be used
to gather other types of information as well as lin-
guistic information.   This supports the view that

language learning is closely linked to other types
of learning (Donaldson 1978).

(iii) MA: - "DO YOU KNOW ...?"

A further strategy was identified for Ma. This may
be a variation on the naming/stating strategy and
was included in this for the purposes of summarizing
the results.

The initiating utterances associated with this stra-
tegy are prefaced with, "do you know ...", "you
don't know ...", "don't you know ...", or "you know
what ...". The clue to this came from a failure on
the part of the investigator to provide the required
feedback, as Greenfield (1980) suggested would be
the case:

(a)

Ma. You don't know   ["It" refers
    what it is.   to a picture
                I. I certainly   on a card]
                   don't. What is
                   it? Oh, you   [In response
                   don't know   to child's
                   either. I   expression]
                   thought it
                   was a trick
                   question.

(b)

Ma. Do you know what
    I drink out of?
                I. What?
Ma. Every time I
    drink juice?
                I. What?
Ma. A - a glass.

```
                        I. A glass! Gosh
                           that's very
                           smart.
Ma. I don't drink
    out of those *
                        I. That's just
                           for tea, hey.
Ma. Yes.
```

This is another example of dual or overlapping in-
tention, since one intention is clearly to impress
the investigator with a recent step towards adult
status.   However various contextual clues point to
a second, if subsidiary goal, that is confirmation
of the correct use of the word "glass".   The first
of these clues comes from the overall pattern of the
interaction which is seen to be similar to other
instances of language hypothesis testing, and to
those typical of this strategy in particular.
Secondly an overview of all interaction involving
this child shows a preoccupation with testing out
"material" words (see p. 191).   The different uses
of the word "glass" are of particular interest as
the child's surname is Glass.   In addition the
hesitation with which the word is produced suggests
that feedback would be welcome.

The following example shows clearly how the child
may use the word quite correctly without being con-
vinced that he understands its meaning fully:

```
Ma. Mummy, I wan, I
    wanna ride in
    the go-cart.
```

Ma. Mum I want to
    ride in the
    go-cart.

                        M. Do you, well why
                           don't you sit in
                           in the go-cart
                           and ask N. to
                           push you, and
                           then you give N.
                           a turn. You put
                           him in the go-
                           cart and then
                           ask - and then
                           you push him.

Ma. Do you know which
    is the go-cart?

                        M. That big thing
                           there, is that
                           what you're
                           talking about?
                           That thing
                           there?

Ma. Yes, that thing.

                        M. And I can see ...

  ...

[As M. goes towards the go-cart to pull it up]

Ma. Oh, it's a go-
    cart.
    I thought it
    was a go-cart.

                        M. Oo, I must get
                           N. a tissue.
                           N., please let
                           me put your
                           socks on before
                           we go anywhere,
                           never mind go-
                           carts.

Ma. Go-cart.
    A go-cart.
    A go-cart.

                        I. It's not going
                           anywhere.

                        M. It's a still cart.

Ma. It's a bus!

                        I. It's a bus?

Ma. Ja.

                        I. Is that why it's
                           not going any-
                           where?

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M. Stopped at the
                       bus stop. Waiting
                       for the passen-
                       gers. Who's a
                       passenger?
Ma. Me.

The last part of this sequence provides an interes-

ting example of metaphor and the way in which this

may be taken up and elaborated by adults.

A similar pattern was also observed to be associated

with the preface, "I think ..." or "I thought

that ...", as in the following examples already

cited elsewhere:

Ma. I thought it was
    a elephant.
                    I. No, it doesn't
                       look anything
                       like an eleph-
                       ant. Where's
                       the trunk?
(see p. 112)

and:

Ma. Oh I thought,
    I thought it
    was glass.
    I thought it
    was glass.
                    M. No, Mummy said
                       he ... it's
                       glass and next
                       time it might break.
(see p. 123)

On several occasions during the study a child was

observed to use two or more different strategies in

a sustained effort to test out a particular language

hypothesis.   This was the case with the first of

the above two examples, which was also cited during

the discussion of naming/stating.   This is an added

factor in establishing directedness, since one can

note Bruner's "sustained direction of behaviour" in

the deployment of different means.

This type of strategy bears some resemblance to an

indirect speech act.   In an indirect speech act the

sentence uttered does not have the surface syntactic

form usually associated with the general class of

illocutionary acts to which it belongs semantically,

for example:

> "I must ask you to move your car."
>
> "Let me say that the attorney general may
> have acted unwisely."

(Davison 1975)

However the indirect speech act still relies on lin-

guistic convention for its correct interpretation by

the hearer, whereas the strategies just outlined

depend on a more individualised use of language.

Successful communication between the child and an

adult unfamiliar with the strategy, will therefore

not be accomplished as quickly as in the case of an

indirect speech act.

P.: INDIVIDUAL STRATEGIES

(i) TAKING UP A WORD AND USING IT IN THE SAME
CONTEXT, BUT NOT AS REPETITION OF AN ADULT'S
UTTERANCE

P. was frequently observed to incorporate a word

just used by an adult into his conversation, over

and above what one would expect in the normal course

of adult/child conversation.

(a)

[P. and I. are looking at a book with a picture of
an alligator]

P. And it's got
   eyes.
                      I. Eyes, ja.
P. Two eyes.
                      I. Eyes to stick
                         out of the
                         water.
P. Mm.
                      I. So that it can
                         see you when it's
                         all underneath
                         the water, with
                         just it's eyes
                         sticking out.
P. Mm, mm, ja.
                      I. And then it can
                         see you. It wat-
                         ches you, but you
                         don't know it's
                         there.
P. Mm.
                      I. Scary things.
P. Mm, scary things.
                      I. Mm.
P. It's watching
   the frog.
   It's watching
   the frog.
                      I. Watching the
                         frog, mm.
P. Mm.

I. I bet the frog's
                                 scared, I would
                                 be.
P. Ja.
   It's eyes just
    peep out of the
   water.
                              I. They will do, hm.

P. Uh, um -
                              I. He looks as though
                                 he's standing on the
                                 sand here though, not
                                 in the water, but if
                                 he were in the water,
                                 his eyes would peep
                                 out.
P. Mm.
   Like this.
                              I. Mm.

P. And he would just
   watch the frog.
                              I. He watches the frog.
P. Mm.
                              I. His eyes on the side
                                 of his head, so that
                                 it can watch - he can
                                 see you coming, he
                                 can see the frog
                                 coming, and the frog
                                 better watch out.
P. Mm.

   . . .

[A couple of minutes later, looking at another

picture]

P. His eyes are just
   peeping out.
                              I. Yes, these ones are
                                 too, aren't they?
P. Yes.
                              I. But they've got all
                                 their heads out.

P. Mm.
                              I. Their whole heads
                                 out.
P. Yes, like that.
                              I. Mm.
P. Yes.   [Fingers
   Like that.   over his
   I * my hands   eyes]
    off.

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I. Take your hands
                                           off your eyes?
P. Mm.
   And he puts his
    eyes on the side
    of his head like
    that.
                                        I. Mm - he doesn't
                                           put them there,
                                           they just happen
                                           to be there, like
                                           a chameleon. Do
                                           you know what a
                                           chameleon looks
                                           like?
P. No.
                                        I. Well it's an
                                           animal a bit like
                                           that, only much
                                           smaller, and it's
                                           got eyes on the
                                           side of its head.

Directedness is very clearly established here,

although conditions of satisfaction are not as easy

to pinpoint.   Long-term memory can be seen to play

an important role, since many different conversa-

tional topics intervene.

(b)

                              M. Ja, she brings   ["She" is
                                 the giant ones   the cat.
                                 in from outside.   "Ones"
                                                     refers to
                                                     cockroaches
P. Yes, and those
    are the giant   [Pointing
    ones.   to a book]
                              M. Are they?
P. Yes, they're big.
   They're big
    giant ones.

[P. goes to answer the telephone and comes back.]

P. Look at that *
    catching him.
   That giant one.

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I. Mm.
P. My, my cat brings
   in the giant ones.
                              I. She does - your
                                 mother was just
                                 saying.

P. Muffin brings the
   giant ones in the
   house.
                              I. From the garden?

P. Mm.

(c)

[The cat, Muffin, jumped over P.'s back.]

P. ... she went off
   my back.

                              I. If she had her
                                 claws out she
                                 would prick you.

P. Mm.
   My back - then
    she was stand-
    ing on by back.
   She put her claws
    out she would
    prick it.
                              I. She would.
P. Yes.
                              I. Right.
P. Like this.
                              I. That would be
                                 sore.

P. Mm. Um.
   Yes, and some-
    times she does
    it nicely.
                              I. Mm hm.
                                 What, stands
                                 carefully on
                                 you?
P. Mm.
                              I. With her claws
                                 in?
P. Yes.
   And sometimes when
    she puts her
    claws out.
   She pricks my
    back.

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I. I'm sure she
                                       doesn't mean to.
P. She doesn't!
                                    I. Hm?
P. She doesn't!
                                    I. Doesn't what?
P. Doesn't prick my
   back.
                                    I. Oh, I see.
                                       Only sometimes.
P. She stands on me
   with her claws
   out and ssssss.

(d)

                                    I. And look at his   [Back to the
                                       socks all   cockroach in
                                       rolled down.   the book]

P. Mm.
   These aren't -
   Why are his
   socks all
   rolled down?
                                    I. I don't know.
                                       I suppose he's
                                       just let them
                                       slip down.
P. Yes, spit down.
                                    I. Slipped, they've   [Clearly,
                                       slipped down.   emphasis on
                                                          "slipped"]
P. Slip.
   Slipped down.
                                    I. Ja, that's right.
P. Sl-lip!
   And they some-
   times slip up!
                                    I. Well, they don't
                                       usually slip up,
                                       they usually have
                                       to be pulled up.
                                       It would only be
                                       if you were
                                       standing on your
                                       head that they
                                       would slip up.
P. Yes.

Directedness is also well established in the

following examples, where a direct request for an

explanation of word meanings constitutes part of the

interaction:

(e)

	I. He's hiding in the gutter.	["He" refers to an Indian mynah]
P. What's a gutter?		
	I. It's this - you see on the roof here.	
P. Ja.		
	I. On the edge of the roof, there's a bit shaped like this, see that bit shaped like this, that's the gutter.	
P. Where?		
	I. On the very edge here. You see, it's shaped like a bowl, only long.	
P. Ja.		
	I. And then what happens is when the rain falls on the roof it falls goes down the roof, cause the roof slopes, it goes into the gutter, see, look it goes all the way down here, all the way round here, it all catches in the gutter, cause the gutter's shaped like that, and it comes down here, and it comes down this pipe, and the water goes out here. So the gutter's to catch the rain.	
P. Mm.		
	I. That's what the gutter's for.	
P. Why is the Indian mynah hiding in the gutter?		
	I. Because you frightened him with your gun.	

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P. Mm.
   But now he's dead
   in the gutter.

                              I. Oh, is he?

(f)

                              I. Whoops, look what
                                 you've done to
                                 the wire. It's
                                 come disconnected.

P. I'll connect it.

                              I. All right, well
                                 mind me, I'll get
                                 out of the way
                                 first.

  ...

P. This has been
   disconnected.
   Let's get in.

  ...

P. Mm.
   The bird's getting
    out of his cage.
   The bird's going to
   unconnect its cage.

  ...

P. Now it's going to
   connect its cage
   together.
   The bird connected
   its cage together
   with its wings.

  ...

P. What means
   disconnected?

                              I. Disconnect it
                                 means to undo
                                 it.

P. Undo the wire?

                              I. If that wire
                                 comes discon-
                                 nected, then it
                                 comes away from
                                 the other side,
                                 it comes undone.

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P. I disconnect it.
   I disconnect it.
                        I. That's right, now
                           it's disconnected.

P. Ja.
                        I. You did it.
                           Now connect it up
                           again.

P. Okay.
   I'll see what
    I'll, I'm going
   to see what
    I'll, I'm going
   to do. The bird's
   tying its cage
   up with its wings.
   Wings.   ["The bird"
                                    is P. the
                                    "cage" is
                                    made with
                                    the wire]
                        I. Wings, oh.

P. There we are.
                        I. Well done, now
                           it's connected
                           up again.

P. Mm.

   ...

P. My wings, flap,
   flap.

P. Disconnected.
                        I. Disconnected, yes.

P. Now the wire is
   disconnected.

   Now it's
   connected.
                        I. Well done.

(See Appendix B for the full transcript of this

sequence.)

P.'s parents' concern with language and its correct

use may account for this child's persistence in

testing out word meanings over relatively long

periods of interaction, and in spite of the intru-

sion of various other topics of conversation.

TAKING UP WORDS AND APPLYING THEM TO
DIFFERENT TOPICS OR IN DIFFERENT CONTEXTS

A variation on this strategy involves P.'s incor-
poration of part of an adult's utterance into his
conversation, using it in a different sense, or in
the case of an adjective, to qualify a different
noun, for example:

(a)

P. You can bounce it
    high up in the air
    like that.
    Like that.
    Oo, like that.
                        I. That's not going
                           to bounce. Show
                           me.
P. Okay.
                        I. Not with the
                           frog, silly,
                           with the balloon.

P. This is a silly
    frog to be a
    ball.
                        I. I wonder if it's
                           the frog that's
                           so silly.
P. Mm.

(b)

                        M. I just love that   [Referring
                           thing.   to a toy
                                                elephant]
P. I just love
    these finger
    puppets.

(c)

P. Yes.
                        F. Yis!
P. Yis, yis.
    Let's make yeast.

I. What makes yeast?

P. Um, red and
   blue makes
   white.

F. Red and blue
   doesn't! Red and
   blue makes purple.

P. Yes, the blue
   will come into
   purple.

F. Yes, if you put
   red into the
   blue it becomes
   purple.

Although the focus on citing this example is on the
use of the word "makes", it is interesting to note
the father's concern with pronunciation, and P.'s
play on the word "yis".

(d)

I. What's it say
   here? A reptile's
   blood is cold,
   a reptile's skin
   is scaly. A rep-
   tile's eggs have
   leathery shells,
   recite this poem
   daily.

P. News!
   Daily News!

I. Daily news, what's
   the daily news?

P. Um, um, Dad and
   I got the Daily
   News.

                              [The name of
                              a local
                              newspaper]

In view of the suggestion that a child's caretakers
play a central role in the developing of language
testing strategies, it is interesting to note the
following interaction between P. and his mother:

P. And I say it
   fast.

                              ["It" refers
                              to a joke]

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I. Do you?
P. Mm. And H. says
   it fast. And
   H. says its
   fast. Ooo! Ooo!
                                           M. H.'s fast
                                              asleep right
                                              now.
P. He isn't!
                                           M. Yes, he is, and
                                              I don't want you
                                              to go in there,
                                              he is fast asleep.

Although conditions of satisfaction proved difficult

to establish in many of these interactions, evidence

of directedness and other contextual factors suppor-

ted the inference of these two strategies.   In par-

ticular the fact that together they constituted a

consistent pattern of interaction which appeared to

be typical of that child, suggested some functional

value.   It is to illustrate this that a large

number of examples have been included.   Given the

parents' concern with language, this functional

value is more than likely to relate to enhancing the

child's linguistic ability, which supports the conc-

lusion that these patterns of interaction are part

of a language testing strategy.

2.2.4   WORDS TESTED REGULARLY THROUGHOUT THE STUDY

So far the discussion has focused on certain strate-

gies used by each child to test their hypotheses

about the meanings of different words.   However it

was also noted that a child would appear to be

striving for a full understanding of a particular word or concept, on various occasions during the study. This preoccupation with the meanings of a certain word illustrates the active involvement of the child in his language development. It shows how different strategies may be applied to the search for the full meaning of a word.

For example, both N. and Ma. show a preoccupation with understanding "material" words such as "metal", "glass", "wood", and "clay". In particular N. frequently attempts to increase his understanding of "metal". As well as being observed directly during the investigation, this was reported by Ma., who says:

Ma. Do you know what N. says?

I. What's he say?

Ma. He says, he, every time when he comes to me and talks to me, he says "my neck made of metal".

I. Mm.

Ma. "My eyes made of metal."

I. Why does he say that?

Ma. I dunno. I don't know why.

An example from the data recorded illustrates this:

N. Look.

I. Who's that, N.?

N. Dolly.

I. Hm!

N. Dolly.

I. Is that your Mum's dolly?

N. No, it's Ma.'s
     dolly.

                         I. Oo - crash!

                         M. Don't break her.

N. This dolly made
     'n metal.

                         I. Made of metal?

N. Mm.

                         I. I don't think so.
                            Metal doesn't
                            break, and I'm
                            afraid she might
                            break.

In this particular example the statement, "this

dolly made 'n metal", appears to derive from N.'s

hypothesis about the properties of metal and its

primary function may be to reject his mother's

warning that the doll might break.

However, taken in the context of many other inter-

actions on the topic of "materials", this sequence

suggests how hypotheses about word meanings may be

formulated and tested.

                         I. No - why won't   ["It" refers
                            it work there,   to a magnet]
                            Ma.
Ma. I don't know.
                         I. It's not metal,
                            that's why.
                            It's glass.

Ma. Where's some
     metal, Mum?
                         M. Some metal?
Ma. Yes.
                         M. Why?
Ma. For this to
     pick up.

[Note: N. is present during this exchange.]

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Ma. is seated in the playroom, surrounded by many toys and other objects, many of them metal. His request may therefore be seen more as a request for the identification of metal, as opposed to non-metal objects.

This interaction is followed within a couple of minutes by the "do you know what ..." sequence referred to on p. 172, suggesting that the investigator's distinction between metal and glass has been taken up in two ways, firstly in seeking for help in distinguishing metal objects from other objects, and secondly in introducing "glass" into the conversation in terms of one of its known uses - a glass to drink out of, as opposed to a mug.

The following sequence is from the next session, a week later:

N. Look, this kanga-
   roo does pick
   up.
                    M. Oh, it does pick
                       up!
N. Mm.
                    M. What's it made of?

N. Metal.
                    M. Oh, it can only
                       pick up if it's
                       made of metal, hey?

Two weeks later the topic of "glass" is again introduced, this time in a very different context:

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Ma. My surname is
    Glass.
                        I. Mm.
Ma. What's your
    surname?
                        I. Taylor.
Ma. Why?
                        I. I'm not sure why,
                           I've had it for
                           such a long time -

[Interaction interrupted by N.]

(See also p. 173 : Ma. "I thought it was glass".)

And the following week:

                        M. What did I make
                           at pottery, N.?
N. Some, some glass!
                        M. Some glass.
N. Mm, some pots.
                        M. Some pots.
                           He keeps asking, "is this",
                           tap, tap, tap, "glass?
                           Is this glass? Is this
                           glass?" You know, I have
                           to explain each thing in
                           turn: "no, that's um, clay,
                           and that's plastic, and
                           that's" - I suppose because
                           we keep saying, "no, be
                           careful, that's glass, don't
                           break that." I explained to
                           them today, I made it with
                           clay and then they put it in
                           the oven and baked it and
                           it turned into pottery.

This last comment provides some useful contextual

background to the following interactions, which took

place earlier on in the same session:

Ma. Is it clay?   [Ma., N. &
                    M. Pardon?   mother are
Ma. Is it clay, or   making
    playdough?   playdough]
                    M. Playdough.
N. Is it clay?

M. No, it's not
                                           clay, it's
                                           playdough.
N. Playdough?
                                        M. Mm.
Ma. Do you want
    some playdough?

N. Yes.

(Note the minimally informative response evoked by

this type of question.)

Also in the same session:

Ma. Is it, is it
    playdough now?
                                        M. Almost, still
                                           a bit sticky.

  ...

                                        N. Mum, I finished.

                                        M. Finished with
                                           your playdough?

                                        N. Yes, put it in
                                           the oven.
Ma. Clay is much
    harder than
    playdough.

  ...

Ma. What is that?
    Mum, what is
    that?
                                        I. Playdough.
Ma. Why is it brown?
                                        I. Cause it's got
                                           dirty on the
                                           way down.

                                        M. It's picked up
                                           all the mud.

In this way Ma. has established that colour is not a defining feature of the substance called playdough, whereas texture is (soft, unlike clay, but not too sticky, as at the stage before it becomes playdough).

At the end of this session, Ma. turns once more to the problem of metal:

Ma. Mum, Mummy.
                              M. Mm.

Ma. That thing's
    much harder
    than this
    thing, that
    thing, that
    thing that
    N.'s got.
                              M. Well, yes, I
                                 suppose it is,
                                 cause - I don't
                                 know, I think
                                 they're both
                                 hard, it depends
                                 how you use them.
Ma. Hey, this is
    metal and
    that's metal.
    This is metal.
                              M. That's right, that
                                 is metal.
Ma. And that's
    metal.
                              M. Mm.
Ma. So they're both
    the same.

It is interesting to note that N. and Ma. share this concern with understanding the meanings of words such as "metal", although they are over a year apart in age and at correspondingly different stages in their language development. It seems that Ma.'s understanding of such terms, while more complete

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than N.'s, is still not fully comprehensive. This supports the idea that a child will gradually establish the boundaries of a word's meaning by testing various hypotheses.

The above examples illustrate very clearly the active role of the child who is striving after a full understanding of word meanings. The ability of even the youngest child to remember and to manipulate various aspects of word meanings, is central to this activity.

This learning about words and their meanings is inextricably linked to concept formation and although the child may initially acquire semantic structures to fit concepts, the further development of conceptual knowledge is likely to be largely language dependent (Nelson 1974).

Another example is drawn from Ma.'s attempt to define the criteria for the distinction between "boy" and "girl":

(a)

I. Come on Choccy,
   come on boy.
   No, Esprit, down!

Ma. Is this a girl   ["This"
    or a boy?   refers to
                                            the family's
I. This - Esprit's   the family's
   a girl.   large dog]

Ma. Oh, why -
    How can you
     know Esprit's
    a girl and
    Puppy's a -

and Puppy's
a boy?
                              I. How can you tell?
Ma. Yes, how can you
    tell that?
                              I. You can see -
                                 they're a
                                 different
                                 shape.
                                 N. what're you
                                 doing?
Ma. Puppy's a boy.   [Puppy is
    Boys are much   about one
      stronger.   tenth the
                                                 size of
                                                 Esprit!]

(b) Three weeks later:

Ma. Three girls, two,
      no, three -
    We've got three
      boys.
                              I. Three boys?
Ma. And, and three
      girls.
    Mummy's a girl
      and Esprit's
      a girl and -
      my nanny's a
      girl.
    And N.'s a girl
      and I -
    No, N.'s not a
      girl.
    N.'s a boy, I'm
      a boy and
      Puppy's a boy,
      so there's -
                              I. So there's?
Ma. Three and three.
                              I. Mm!

(c)

Ma. Got a sore foot
      and she's
      limping.
                              I. Oh, poor girl.
Ma. See.
                              I. Poor girl.
Ma. What name is   [The puppy,
      that?   Chocolate
                                               Mouse]

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Ma. That?
   Is he a girl?
                      I. Chocolate Mouse -
Ma. Is he a girl or
   a boy?
                      I. I think he's a
                         boy.
Ma. Yes, he is a
   boy.
```

A particularly interesting example concerns N.'s
attempts to master the use of the words "other" and
"another".   This is interesting because it illus-
trates so clearly how a child can use a word on many
occasions in its appropriate context without having
a full grasp of the meaning and use of the word.
On most occasions this lack of understanding will
not be apparent to the mature listener, but at times
it is exposed.   As the sequences relating to this
example are rather long, they have been detailed in
Appendix B.

This type of relational term is a complex one to
master and may be used in appropriate contexts for
some time before full understanding is attained.
One is reminded of Piaget's insistence that it may
be misleading to make inferences about a child's
understanding of the world from the way he talks.
The example of young children's use of time words
and expressions is often cited here, since they are
able to use words such as "Saturday", "yesterday",
and "next week" in many different appropriate
contexts, without the corresponding understanding.

Other meanings regularly tested by N. are noted in the Summary of Results.

The method of collecting the data (i.e. one session a week) was not particularly well suited to exploring this aspect, although the wide spacing of sessions makes the directedness of this activity, when observed, very apparent. Certainly those instances recorded do do give considerable support to the view of the child as actively testing various hypotheses about word meanings.

2.2.5 GENERAL DISCUSSION

The aim of the study was achieved in that several verbal information-gathering strategies were identified, including four which were common to all three children. This preliminary identification of strategies proved a difficult task, since clear guidelines for doing so are hard to formalize. Regularities based on sentence-type are perhaps the most easily recognized. This was the basis on which the first strategy, dependent on the use of interrogative utterances concerning language, was identified. However it was noted in discussing this, that sentence-type provides an incomplete access to utterer's meaning, which can only be accurately interpreted in terms of overall context.

The identification of the strategy of naming/stating
relied more heavily on utterer's meaning as inter-
preted in terms of directedness, conditions of
satisfaction and mutual understanding. This was
clearly an important strategy for all three children
(N. 7,95: Ma. 6,36: P. 7,61, see Table 1). It is
quite possible that there are individual differences
in the way children employ this strategy, and there
may even be various distinct but related strategies
involved here, as appeared to be the case with Ma.
However it would be no simple task to develop a
method of analysis which would enable one to make
these finer distinctions.

In general the naming/stating strategy appears to be
particularly well substantiated. The instances of
its use were fairly readily identified and satisfac-
torily established in terms of directedness, condi-
tions of satisfaction and mutual understanding,
which was not always the case with the metaphor
strategy and some of the individual strategies.

The conclusion that these children used metaphor to
enhance their understanding of language does appear
to be a valid one. However metaphor is a more
complex phenomenon than question-asking or naming
and stating, and individual instances of its use as
a verbal information-gathering strategy are

correspondingly more difficult to identify and sub-
stantiate.   A further problem is the relatively low
rate of metaphor production in young children.   It
may well be that this strategy only really comes
into its own at a later stage in development.

Identification of the individual strategies was
based on various forms of regularity, with clues
even being provided by specific words or phrases,
for example Ma.'s use of the words "you know ...",
and "I thought".

The fact that all utterances involved in the use of
verbal information-gathering strategies only consti-
tuted a small proportion of each child's overall
speech production is only to be expected.   So many
of a child's utterances are taken up with exclu-
sively practical concerns such as expressing various
physical needs or desires, and even those utterances
which have a primarily mathetic function may be
directed towards a number of diverse concerns, of
which word meaning is only one.   For this reason,
further investigation of the use of verbal
information-gathering strategies would require the
collection and detailed analysis of a very large
number of utterances from many children.   The use
of data collected by others is not recommended for
this purpose, as the investigator's familiarity with
the families and her participation in the

interactions was found to be invaluable in the identification of strategies.

The analysis of the data suggests that the first four strategies discussed may be common ways for children to use language to improve their mastery of language. However it must be emphasized that no generalizations can be made on the basis of this study, which was designed to investigate the hypothesis that such strategies do occur, and to identify examples of different strategies. The question of which strategies are the most common or most effective, remains one for future research. What can be said is that there do exist some individual differences in strategies and that these individual differences appear to derive largely from different parental emphases or patterns of interaction.

The fact that two of the subjects were brothers meant that fewer individual strategies were identified than might otherwise have been the case. However this choice of subjects did serve to indicate the parents' influence on the development of these strategies. This influence should not be underestimated, although the focus of the study has been on the utilization, rather than the initial developing, of the strategies.

The conclusion that different children may use dif-
ferent strategies has important implications
for remediation, especially if certain strategies
can be shown to be more effective than others.   It
is interesting that much of the motivation to study
the dynamics of language development comes from
those concerned with problems and retardation in
this field (e.g. Snyder-McLean and McLean 1978, Lund
and Duchan 1983).   It is extremely difficult to
develop and carry out efficient ways of collecting
the necessary data and even more problematic to
develop satisfactory ways of analyzing or inter-
preting it.   The fact that the coding system was
applied by two people independently does help to
achieve some measure of reliability, but it is easy
to see why many investigators feel that it is diffi-
cult to study with sufficient rigour the active role
played by the child in language development.
Nevertheless, it is important to make the attempt to
understand this role.   For without some understan-
ding of this aspect it is extremely difficult to
develop efficient methods for assessing problems and
for remediation.

A specific limitation of the present study was the
reliance on typewritten transcripts and contextual
notes.   This was partly alleviated by the fact that
the investigator was present at all sessions and had

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participated in the interactions. Much of the type
of contextual detail which is difficult to formalize
could therefore be drawn on in the interpretation of
the data. Video recordings would provide a more
comprehensive record and would be particularly use-
ful in reaching intersubjective agreement. The
tape recordings were also available for information
about intonation, pitch etc. A formal analysis of
this aspect of interaction was not included, but
could prove a useful source of evidence in future
studies.

As Lyons (1981) points out, only the verbal compo-
nent of an utterance is medium-transferable, but
non-verbal features such as intonation, stress-
patterns, tone of voice, loudness, rhythm and tempo
are all equally relevant to the determination of an
utterance's meaning.

The study was conducted on the basis of weekly
visits, which usually took place at the same time of
day on the same day of the week. Since it was not
designed as a longitudinal study of development, it
might have been better to have made the sessions
follow on more closely from each other. This would
have increased the contextual information available
to the investigator and may have provided more of
the type of evidence discussed in section 2.2.4.
However even those studies having the investigator's

own children as subjects cannot provide all the contextual information necessary to ensure accurate interpretation of the interactions. It is always difficult, for example, to tell with any certainty whether a metaphor is an imitation of another's utterance (possibly even an imitation distorted by imperfect memory) or an original production.

2.3 CONCLUSIONS

All three children were found to make use of language in order to learn more about language. Specifically, they were found to use various strategies by means of which they were able to enhance their understanding of word meanings. Four of these strategies were common to all three children, while two were shared by N. and Ma. only, and two were specific to P. Even in the case of N. and Ma. individual differences were found in the use of the two strategies which they shared. Consideration of these strategies supported the idea that a child's caretakers play a central role in their development. N. and Ma.'s preoccupation with testing the meanings of certain words throughout the course of the study further supported the notion of children as actively involved in testing hypotheses about word meanings, and indicated how a child may use a word or phrase appropriately for many months before full comprehension is attained.

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APPENDIX A : MCSHANE'S CATEGORIZATION SYSTEM

REGULATION CATEGORIES : Utterances attempting to regulate someone else's behaviour

Attention	Request	Vocative
Attempt to direct someone's attention to an object, action or event. Such utterances often accompanied by pointing.	Demand or request something from another person - including requesting permission to do something.	Calling another person i.e. requesting their presence.

STATEMENT CATEGORIES : Mainly utterances making a statement about the environment

Naming	Description	Information
Reference to an object or person by name only. Usually labelling, but also: onomatopoeia interaction association (in absence of referent.)	A statement other than or as well as naming.	A statement about an event beyond the here-and-now.

EXCHANGE CATEGORIES

Giving	Receiving
Excludes giving in the context of requesting something, e.g. "play, ball".	e.g. "Thanks."

PERSONAL CATEGORIES

Doing	Determination	Refusal	Protest
Description of past or current actions.	Expression of intent to do something.		

CONVERSATION CATEGORIES

Conversational responses and conversational initiations. These categories, unlike the others, concern the relations between the utterances of the child and another speaker.

Imitation	Answer	Follow-on	Question
Immediate imitation of all or part of a preceding adult utterance.	Response to a question, excluding imitation.	Conversational response other than imitation.	Request information.

MISCELLANEOUS CATEGORY

Utterances in which the intention can be recognized, but which do not fall within one of the other categories e.g. "hallo", "bye-bye".

(Adapted from McShane, 1980 : 73-79)

N. : "Other" and "another"

(i)

                                        M. N., look, if you've finished with the men, put the men away –

N. Mm?

                                        M. – and then you can play with the cards. But you can't play with everything lying on the floor at the same time.

                                        I. There's another man.

N. Oh, need that man. Where's that other man, oh?

                                        M. Which one? I tell you what –

                                        I. There's one.

N. No.

                                        I. Oh no, he belongs to that –

                                        M. Here you are, N., come sit this side, bit close to each each other there, here you are, then you won't bump each other.

N. Mummy, where – Where's that other man?

                                        M. Which one?

N. That other man with, with a car.

                                        M. He's already riding in his car.

N. This racing car?

                                          M. Mm.

[Here, while N. appears at first to be using the
term "other" correctly, the overall context suggests
that his understanding of this term is incomplete.
Since he cannot recognize the "other man" when he
sees it, but has to ask for confirmation from his
mother that this is in fact the "other man", it
appears that he lacked an initial representation of
the concept of the "other man".]

N. (ii)

Ma. Oh yes I forgot
that - but
where's another
square? Another
square like this -
I need some.

N. Need some?

Ma. Yes.

N. Oh!
Oh, need another
moon shape?   [Moon-shaped
                                         piece of
                     Ma. No, not here. plastic]

N. Another moon
shape here.

Ma. Put that around
like that.

I. It's half a
moon, hey?

Ma. Yes. But where's
another moon
shape? Hey?

I. I can see another
one, N., can you?

N. Mm.

I. I can see one.

Ma. I can't.

I. Can't you?

Ma. No.

I. I can.

Ma. Where?

I. Can't you, N.?

Ma. Where?

N. There's another,
   and here's
   another one.

                    Ma. This one?

                    I. No.

                    Ma. This one?

                    I. No, under the
                        box here. There
                        you are.

                    Ma. There're two.

                    I. Ja.

                    Ma. But I 'ready
                        got two. You
                        know what this
                        is?

                    I. What is it?

                    Ma. It's a bunny
                        rabbit. 'n I
                        see, I see him
                        on T.V.

                    I. What's his name
                        when he's on T.V.?

                    Ma. I don't know.

                    I. Mm, no, I've
                        never seen him.
N. Another one, and
   a -

                    Ma. And there's   [Pointing to
                        another one.   another moon
                                          shape]
                    I. Uh huh.
N. And there's
   another one.

                    I. On the other side?

                    Ma. Yes.
N. And there's
   another one.

                    I. Isn't that the same
                        one?
N. And there's
   another one.

```
                           Ma. Yes, it is the same
                               one.
N. There's another
   one, there's
   another one.
                           Ma. * It's the same one.

                           I.  Mm, I thought so.
                               What's that wheel, N.?
```

[Here again, N.'s use of the term "another" appears
to be correct, until it finally becomes clear that
he is applying it indiscriminately to any moonshape,
and fails to distinguish "another" from "the same".]

Approximately five minutes later:

```
N. I can see 'nother
   one.
   Ma., here's
   another one.
                           I. Another moon?

N. I made, made a
   moonshape.
                           I. A moonshape -
                              I think it's
                              better the other
                              way.
N. Oh.
                           I. That's right.
```


P. : "disconnected"

[P. is playing a game with a long piece of wire,
which he has tied up to a cupboard at both ends. He
pretends to be a bird in a cage, by standing inside
the loop made by the wire from one cupboard door to
another. I. is sitting on the bed "reading" and
talking to P.]

```
                           I. Whoops, look what
                              you've done to the
                              wire. It's come
                              disconnected.
P. I'll connect it.

                           I. All right, well mind
                              me, I'll get out of
                              the way first.
P. **

                           I. It's copper wire,
                              isn't it?
P. Ja, copper wire.
```

I. Mm.

P. Look what it's
made of -
plastic - kind
of sticky.

I. It's not really sticky,
it's quite smooth,
maybe there's some-
thing sticky on it.

P. It's the wire
that's sticky.

I. Do you think so?
The copper? Well, it
could be.

P. This has been
disconnected.
Let's get in.

I. What're you inside,
a cage?

P. Mm.

I. Are you an animal
at the zoo?

P. Mm.

I. What are you?

P. Tiger!

I. A tiger, oh, I'm
scared, you'd
better stay behind
your cage.

P. I'm a bird.

I. Oh, you've shrunk,
- you're smaller now
you're a bird.

P. Mm, the bird's
getting out of
his cage.
The bird's going
to unconnect
its cage.
One good boy and
one baby.
There's one good
boy and one
baby.

I. Where?

P. ***
The bird's going
to fly out of
its cage. The
bird flew out of
its cage.

I. And flew away?

P. Ja.

P. Now it's going
   to connect it's
   cage together.
   The bird connec-
   ted its cage
   together with
   its wings.

                                I. With its rings?

P. Wings!
                                I. Rings around
                                   the string?

P. Ja.
   What rings?
                                I. I don't know.
                                   You said rings.
                                   Didn't you?

P. Ja.
                                I. Well, what did
                                   you mean?

P. I don't know.
   Wings.
                                I. Oh, wings! Is
                                   that what you
                                   said, I thought
                                   you said rings.

P. I'm a bird.   ["Flying"
   That's **   around the
    my notice.   room]
                                I. Hm?
P. That's my notice.
   That's my notice.
   That's my notice.
                                I. Is it yours?

P. Ja.
                                I. From where? Where
                                   did you get it
                                   from?

P. I don't know.
                                I. Didn't you get it
                                   from school?

P. No.
   Heee - broke the
    net.
                                I. Who broke the net?

P. Me.
   There's a differ-
    ent way of fix-
    ing it.
   Open this ** c'n
    open this bloody
    net!
   This fishing net
    is H.'s, but I
    broke it.

I. Oh dear, H. won't
be very pleased.

P. He is!

I. He doesn't mind?

P. No.

I. Oh, that's lucky.

P. What means
disconnected?

I. Disconnect it means
to undo it.

P. Undo the wire?

I. If that wire comes
disconnected, then
it comes away from
the other side, it
comes undone.

P. I disconnect it.
I disconnect it.