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 meanings 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 individual 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 language 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 development and what roles may be played by different strategies.
## CONTENTS

<table>
<thead>
<tr>
<th>INTRODUCTION AND AIM</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART I : THE PROBLEM AND REVIEW OF LITERATURE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CHAPTER ONE : SOME INITIAL STATEMENTS OF THE PROBLEM EXPLORED BY THE PRESENT STUDY</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>CHAPTER TWO : THE CHILD AS HYPOTHESIS-TESTER : THE ACTIVE LEARNING ROLE</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>14</td>
</tr>
<tr>
<td>2.2 Piagetian Theory and the Study of Language Development</td>
<td>18</td>
</tr>
<tr>
<td>2.3 What Motivates the Quest for Linguistic Knowledge?</td>
<td>31</td>
</tr>
<tr>
<td>2.4 An Information-Processing Perspective</td>
<td>33</td>
</tr>
<tr>
<td>2.5 A Study of Language Development of Particular Importance for the Present Study : Nelson (1973)</td>
<td>36</td>
</tr>
<tr>
<td>2.6 What is Attributed to the Child?</td>
<td>42</td>
</tr>
<tr>
<td>2.6.1 Strategy</td>
<td>42</td>
</tr>
<tr>
<td>2.6.2 Intentions</td>
<td>48</td>
</tr>
<tr>
<td>2.6.3 Metalinguistic Awareness</td>
<td>52</td>
</tr>
<tr>
<td>2.6.4 The Desire to Communicate and the Desire for Conceptual and Linguistic Knowledge</td>
<td>55</td>
</tr>
<tr>
<td><strong>CHAPTER THREE : THE COMMUNICATIVE CONTEXT OF LANGUAGE DEVELOPMENT</strong></td>
<td></td>
</tr>
<tr>
<td>3.1 Introduction</td>
<td>57</td>
</tr>
<tr>
<td>3.2 Pragmatics</td>
<td>58</td>
</tr>
<tr>
<td>3.3 Speech Act Theory</td>
<td>60</td>
</tr>
<tr>
<td>3.4 Grice and Meaning</td>
<td>64</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>2.2.1 Presentation of Examples</td>
<td>102</td>
</tr>
<tr>
<td>2.2.2 Strategies Common to all Three Children</td>
<td>103</td>
</tr>
<tr>
<td>2.2.3 Individual Strategies</td>
<td>160</td>
</tr>
<tr>
<td>2.2.4 Words Tested Regularly Throughout the Study</td>
<td>187</td>
</tr>
<tr>
<td>2.2.5 General Discussion</td>
<td>197</td>
</tr>
<tr>
<td>2.3 Conclusions</td>
<td>203</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>204</td>
</tr>
<tr>
<td>APPENDIX A</td>
<td>214</td>
</tr>
<tr>
<td>APPENDIX B</td>
<td>216</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1 11
Figure 2 39
Figure 3 41
Figure 4 133
Figure 5 134

LIST OF TABLES

Table 1 100
Table 2 101
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 development have tended to focus on language comprehension, or strategies for processing incoming verbal information. 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 undoubtedly 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 concerned 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 mechanisms underlying language development this controversy 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 ability, 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 informative 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 psycholinguist" - 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 language. Having heard a new word, the child formulates a hypothesis about its semantic restrictions,
and tests this hypothesis by violating these restrictions. Of course this is a particularly sophisticated and highly individualised type of interaction for such a young child to participate in. However it does lead to speculation on the possibility 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 linguistic 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 development in the child occurs in the context of interaction with competent speakers of language. What is subject to differences of opinion is the level of
contribution assigned to child and adult respectively. 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 individual differences in the way in which children take an active role. Just as studies of the adult role assume individual differences among adults in facilitating the child's language learning, so it is likely that there will be similar individual differences among children in eliciting this type of facilitating behaviour. This is an aspect of language development still to be investigated. (Wells and Robinson 1982)

The need to acknowledge individual differences in this regard is further highlighted by a consideration 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
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 nonetheless functional in evoking a linguistic response from a more mature speaker.")
(1978 : 318)
INTERROGATIVE UTTERANCES
WH-QUESTIONS
Example
Child points to fox at zoo, says: "Wha?"

"HYPOTHESIS TESTING"
Example
Child points to fox at zoo, says: "Doggie!"

EVOCATIVE UTTERANCES
Example
Child points to fox at zoo, says: "Doggie!"

Most

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 implied by Snyder-McLean and McLean (1978), who categorize such hypothesis-testing as one type of metalinguistic 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 assumption 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 performance based on hypothesis-testing principles is Gholson's (1980) "hypothesis theory", which he describes 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 developmental 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 development. 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 identifying 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 approach to child language (Bloom 1973, Bruner 1975, Edwards 1973, MacNamara 1972,

The key theoretical point in 1960s research was maintained: The child is viewed as a hypothesis-tester, an active creator of successive "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 internally, 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 Imitation in Childhood - or more accurately La Formation du Symbole chez l'Enfant), he emphasizes the developmental 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 linguistic, 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 development. 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 syntactical 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
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 learning process. Karmiloff-Smith (1979) cautions against seeing sensorimotor action schemes as sufficient 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 conceptual 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 environment 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 intelligence 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 important 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 characteristics 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
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 semantic 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 environment, 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 information 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 proposed 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 concerned, Chomsky (Miller and Chomsky 1963) accepts that language comprehension, production and acquisition 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 hierarchies 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 experienced 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.
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 interrelating the child's preverbal concepts and acquisition 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 linguistic 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 assumptions 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 development, 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 isolation, 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".

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 strategies 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 production as a language learning strategy covers the various forms of hypothesis-testing suggested in Part II. Nelson sees this as a testing or experimental 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 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.
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 constructed, 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 understanding 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 responding 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
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 identified 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 epistemological 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 regularities in their behaviour.  
(Bever 1970 : 282)
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)
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.
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 consciously intended.

2.6.2 INTENTIONS

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
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 representation; 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 possible 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 unnecessary complication in attributing the use of verbal information-gathering strategies to young children. The notions of directedness and conditions of satisfaction 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 purposeful behaviour. It may well be that the question of "conscious intent" and when it can first be attributed 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 distinction is stressed by Searle (1983 : 2) who suggests
that "Intentionality is not the same as consciousness". 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 conceptual 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
It is clear that different authors have very different views on the scope of this concept:

[The development of metalinguistic awareness 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 metalinguistic 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 intuitions", 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 metacognition 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 prima-
ryl 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 functionalist approach). Alternatively, one may take a middle line, and study the influence of pragmatic factors on phonology, morphology, syntax and semantics, 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:

\[ S \text{ meant-nn } z \text{ by uttering } U \text{ if and only if:} \]

(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)
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 predicking.

(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 illocutionary 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 factors 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
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 necessarily 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 communicative.)

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:

<table>
<thead>
<tr>
<th>Functions (Halliday 1975)</th>
<th>Meaning Glosses (Wells 1981)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instrumental</td>
<td>&quot;I want&quot;</td>
</tr>
<tr>
<td>2. Regulatory</td>
<td>&quot;Do as I tell you&quot;</td>
</tr>
<tr>
<td>3. Interactional</td>
<td>&quot;Me and you&quot;</td>
</tr>
<tr>
<td>4. Personal</td>
<td>&quot;Here I come&quot;</td>
</tr>
<tr>
<td>5. Heuristic</td>
<td>&quot;Tell me why&quot;</td>
</tr>
<tr>
<td>6. Imaginative</td>
<td>&quot;Let's pretend&quot;</td>
</tr>
</tbody>
</table>

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 interactional, 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 construction 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 distinc­ 
tion 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 investiga­ 
tors. McShane (1980) outlines a detailed categori­ 
zation 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 investigators 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 intersubjectivity" 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 practice. 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 conceptual 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 sensorimotor 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 application. Overextension would be a particular example of this phenomenon.

(Summarized from Atkinson 1982)

Atkinson's evaluation of the functional core hypothesis 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 similarity 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 perceptual 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 semantic 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 investigated by this study, and from which to draw guidelines 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 particular. 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 manifest through microanalytic techniques, can, however, reveal observable signs of the two major features of intentionality directionality and terminal requirements (Bruner 1974) and go beyond the solipsism of each participant's interpretation of the other participant'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 precisely 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 interpretation 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 developing 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 conversational 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 investigator, 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 guideline. Being slow to talk means very little as a predictor of later linguistic ability, or even as an indicator of current comprehension ability. Nevertheless, 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 drawback 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 transcribed 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 accurately, or even at all, and it was felt that transcription 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 influenced 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 interactions 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 sessions (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 interactions. 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 individual instances of each strategy. Also included 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 integrated 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.
(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

<table>
<thead>
<tr>
<th></th>
<th>N.</th>
<th>Ma.</th>
<th>P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct questions</td>
<td>0.75</td>
<td>2.17</td>
<td>4.26</td>
</tr>
<tr>
<td>Naming/stating</td>
<td>7.95</td>
<td>6.36</td>
<td>7.61</td>
</tr>
<tr>
<td>Metaphoric use of language</td>
<td>4.14</td>
<td>1.93</td>
<td>1.13</td>
</tr>
<tr>
<td>Selective imitation</td>
<td>2.39</td>
<td>0.67</td>
<td>1.51</td>
</tr>
<tr>
<td>Questions not directly related to word names or meanings</td>
<td>2.49</td>
<td>1.3</td>
<td>-</td>
</tr>
<tr>
<td>Arguing/denial</td>
<td>1.6</td>
<td>0.59</td>
<td>-</td>
</tr>
<tr>
<td>Taking up words in same sense or context</td>
<td>-</td>
<td>-</td>
<td>5.02</td>
</tr>
<tr>
<td>Taking up words in different sense or context</td>
<td>-</td>
<td>-</td>
<td>1.67</td>
</tr>
</tbody>
</table>

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.

N.
might
little tiny (big, small)
metal, glass, clay
mouse
my, my mummy's, your
brand new, new
other, another
need (as opposed to "want")

MA.
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.

<table>
<thead>
<tr>
<th></th>
<th>N.</th>
<th>Ma.</th>
<th>P.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90%</td>
<td>88%</td>
<td>91%</td>
</tr>
</tbody>
</table>

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 orthography, 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.

...\n
P. What's mustard?

M. Mustard - is a fairly burny mixture 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 detailed 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.
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 particular, she found a positive relationship between questioning and vocabulary acquisition. However she cautions that this need not imply that questioning 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 confronted with the problem of distinguishing semantic and conceptual knowledge, or knowledge about language 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 apple tart?", 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 interpretation, support the inference of the activity of verbal information-gathering.

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

P. What's that? I. This?
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:

(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 speakers of the language themselves, it is assumed that both the investigator and her colleague had available 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. Nevertheless, 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 interrogative 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 mashing 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 sometimes 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 - this?

I. Let me have a look. I think it's a donkey.

[ Holding up a card with a picture of a donkey on it. ]

Ma. I thought it was a elephant.

I. No, it doesn't look anything like an elephant.
Where's the trunk?
Ma. Because I thought it was an elephant 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 minimally informative.

In general, because question-asking by means of interrogative utterances is such a well defined pattern 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 boundaries 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
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 meta-linguistic 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 satisfaction 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 assump-
tions 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—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.

119
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.
   Oh, little green man.
   Little green man.
   Oh.

   M. 'Tis too.

   [Mother reports on colours "he hasn't really known any, but suddenly I notice that he's starting to pick out green."]

   [Holding out a hat]

N. Look, look, Mum.

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
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 directedness, 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 individual 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 and see. [N. has dropped a milk bottle]
Did he drop that? Did N. drop that?
Mum, did N. drop that?

M. Yes, it was a mistake, he didn't mean to.

122
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 [Reading ate through from a book, one, two, three both looking plums and he at a picture was still of three hungry. plums]

P. Ja.

I. On Thursday he [Looking at ate through the picture]

P. Where's the other plum?

I. There's the other plum.

P. There's the other plum.

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 hypothesis.

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 responded to as a request for confirmation and elaboration. The difference between these two interpretations can be seen clearly if one considers Griffiths' (1979) discussion of statements. According 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
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 window.

I. Every day?

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 answer 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?

F. Um - eleven - eleven blisters.
I. Eleven blisters! You had eleven blisters?!

P. And I've got one there.
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, freckle. [To himself 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
decision stages involved in the speeded verification of Subject-is-Predicate statements such as, "a robin is a bird".

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 example, 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, test by comparing all features associated with that concept, with those of the perceived object

Intermediate similarity

Compare defining features

Low similarity

Mismatch

Reject word, reinstitute search

High similarity

Match

Accept word, exit from 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 "accidental". 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
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 partially 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 practice, as self-imitation, or as emphasis in the service of communication.  
(Nelson 1973 : 53)

However she concludes that the last aspect of repetition 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 characteristics of a match-to-sample game. In using his available words the child (a) practises their phonetic production, (b) tests his concept 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 strategy 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 discussion. 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 metaphorical 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 towards 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 structure 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.
M. 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. Mmmhm.

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 rock.

I. That's a funny looking rock.

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 children'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:

N. Bottle.
   A bottle.
   A bottle.

I. Hey! What' you doing? [N. is playing with plasticine]

I. A what?

N. Bottle.

Ma. It's a bottle of muti.

I. A bottle! [Resemblance to a bottle is very slight]

N. Mm.

I. Oh, I see. Is that the lid?
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 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 representation 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 symbolic 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)
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 perceptual 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 consequences of being shown to be wrong. These consequences 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 playful manipulation is a central part of the environment 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:


I. Mm. M. You call them chickens?

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
clear 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 information being called up from long-term memory as necessary. This is of course similar to what happens 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?
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. makes a noise]

I. No, I don't see, but I hear.

M. Ma., that's making a horrible snapping noise.

N. Look - parrot back inside here.

I. Oh, back inside there now.

N. Ja.

I. Must be pretty squashed.

N. Oh.

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.?

N. Tisn't a bluff 
bluff parrot.

I. What is it then?

N. It's a big 
parrot.

Ma. Is it a real one?

N. Jai! 
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) **SELECTIVE IMITATION**

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. Mmhmm.

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.

Ma. There's some more eyes.

I. Mmhmm. ** 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.
I. Oh, I remember you told me yesterday.

P. Mm.

I. Measures in inches and centimetres.

P. Yes.

I. That's very handy.

P. Yes.

Um, measure in centi-centimetres.

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 because 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 context 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 commented 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 usefulness 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 inappropriately phrased (as evaluated by the investigator during analysis).

- Evidence of directedness in pursuing an understanding 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 question 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?

161
N. This.

N. Ja.

M. The flag?

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.

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 - Mummy pour this in a cup.

[ Holding out a packet of 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 the small boy who]

M. Yes, what's it called? What does it say when it comes out?

163
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.

M. That cuckoo *.

Ma. That cuckoo *.

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

Again the overall context of this interaction sequence 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 satisfied by the reply, "in his house". Directedness is very clear, since a considerable amount of interaction intervenes between the question and its reappearance. The idea (Greenfield 1980) that the best conditions for establishing intention are when feedback 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 establishing directedness. Because of this failure presentation 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 intro­
duced 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 representa­
tion 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 inappropriately 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.]

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.

N. Tis leg.

M. It's not leg. [Laughing] It's mouth.

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 is for. [Shuttlecock]

Ma. For playing tennis.

I. What's it for?

Ma. I know.

I. It's for playing a game like tennis, called badminton.

Ma. No, but I saw they play tennis with this thing on T.V.

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

Ma. Ja, it's like tennis, but they call it badminton, instead of tennis, cause you use that. That's a shuttlecock, and when they play badminton 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.
I. Think it's a rabbit in 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 bunny rabbit. It's a - it's a ma, ma, ma, m - mouse.

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

Ma. Look, look what happens. 

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 cannot, 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 linguistic 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 strategy 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)

["It" refers to a picture on a card]  [In response to child's expression]

Ma. You don't know what it is.
I. I certainly don't. What is it? Oh, you don't know either. I 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 intention, 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 convinced that he understands its meaning fully:

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

173
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.

Ma. It's a bus!

I. It's a bus?


I. Is that why it's not going anywhere?
M. Stopped at the bus stop. Waiting for the passengers. Who's a passenger?

Ma. Me.

The last part of this sequence provides an interesting 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 elephant. 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 linguistic 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 watches you, but you don't know it's there.

P. Mm.

P. Mm, scary things.

I. Scary things.

I. Mm.

P. It's watching the frog.

It's watching the frog.

I. Watching the frog, mm.

P. Mm.

177
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.
   Like that.
   I * my hands off.

[Fingers over his eyes]
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 conversational topics intervene.

(b)

M. Ja, she brings the giant ones in from outside. ["She" is the cat. "Ones" refers to cockroaches]

P. Yes, and those are the giant ones.

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.
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 standing 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 sometimes 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.
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.

P. She stands on me with her claws out and ssssss.

I. Only sometimes.

(d)

I. And look at his socks all rolled down.

P. Mm. These aren't -

I. I don't know. I suppose he's just let them slip down.

P. Why are his socks all rolled down?

I. Slipped, they've slipped down.

P. Yes, spit down.

I. Slipped, they've slipped down. [Clearly, emphasis on "slipped"]

P. Slip.

I. Ja, that's right.

P. Sl-lip! And they sometimes 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.
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.
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.
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 intrusion of various other topics of conversation.
(ii) **TAKING UP WORDS AND APPLYING THEM TO DIFFERENT TOPICS OR IN DIFFERENT CONTEXTS**

A variation on this strategy involves P.'s incorporation 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 to a toy elephant]

P. I just love these finger puppets.

(c)

P. Yes.

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 reptile'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]
I. Do you?

P. Mm. And H. says it fast. And H. says its fast. Oool Oool

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 supported the inference of these two strategies. In particular 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 conclusion 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 strategies 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?

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

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.

N. Dolly. 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 interactions on the topic of "materials", this sequence suggests how hypotheses about word meanings may be formulated and tested.

I. No — why won't it work there, ["It" refers 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.]
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 kangaroo 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:
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?

M. Pardon?

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

Boys are much stronger.

(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 that?

[The puppy, Chocolate Mouse]
Ma. That?
Is he a girl?
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 illustrates 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 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 interpreted 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 satisfactorily established in terms of directedness, conditions 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 substantiate. 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 constituted 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 exclusively 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 different 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 interpreting 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 difficult 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 understanding 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
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 useful 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 component 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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210


APPENDIX A : MC ShanE'S CATEGORIZATION SYSTEM

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

<table>
<thead>
<tr>
<th>Attention</th>
<th>Request</th>
<th>Vocative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempt to direct someone's attention to an object, action or event. Such utterances often accompanied by pointing.</td>
<td>Demand or request something from another person including requesting permission to do something.</td>
<td>Calling another person i.e. requesting their presence.</td>
</tr>
</tbody>
</table>

STATEMENT CATEGORIES : Mainly utterances making a statement about the environment

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

EXCHANGE CATEGORIES

<table>
<thead>
<tr>
<th>Giving</th>
<th>Receiving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excludes giving in the context of requesting something, e.g. &quot;play, ball&quot;.</td>
<td>e.g. &quot;Thanks.&quot;</td>
</tr>
</tbody>
</table>

PERSONAL CATEGORIES

<table>
<thead>
<tr>
<th>Doing</th>
<th>Determination</th>
<th>Refusal</th>
<th>Protest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of past or current actions.</td>
<td>Expression of intent to do something.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONVERSATION CATEGORIES

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

<table>
<thead>
<tr>
<th>Imitation</th>
<th>Answer</th>
<th>Follow-on</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate imitation of all or part of a preceding adult utterance.</td>
<td>Response to a question, excluding imitation. excluding imitation.</td>
<td>Conversational response other than imitation.</td>
<td>Request information.</td>
</tr>
</tbody>
</table>

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)
APPENDIX B : ADDITIONAL TRANSCRIPTS, N. AND P.

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 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?

Ma. No, not here.

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?

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 another one. [Pointing to 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.
P. Look what it's made of - plastic - kind of sticky.

I. Mm.

I. It's not really sticky, it's quite smooth, maybe there's something 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.

P. Ja.

I. And flew away?
P. Now it's going to connect its cage together. The bird connected its cage together with its wings.

I. With its rings?

P. Wings!

I. Rings around the string?

P. Ja.

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.

That's **

my notice.

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 different way of fixing it. Open this ** c'n open this bloody net! This fishing net is H.'s, but I broke it.
P. He is!
P. No.
P. What means disconnected?
P. Undo the wire?
P. I disconnect it.
   I disconnect it.

I. Oh dear, H. won't be very pleased.
I. He doesn't mind?
I. Oh, that's lucky.
I. Disconnect it means to undo it.
I. If that wire comes disconnected, then it comes away from the other side, it comes undone.