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THE DEVELOPMENT OF THE MEANING OF NON-OSTENSIVE WORDS

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IN A GROUP OF PRIMARY SCHOOL CHILDREN

Denise Erica Segal

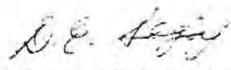
Department of Linguistics and English Language

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DECLARATION

I hereby declare that this thesis
is my own work and that it has not
been submitted to any other university.


Denise Erica Segal

To David
and
to my parents

"...we don't always mean what we
say, even when we manage to say
what we mean."

(Tom Stoppard: Professional Foul)

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ABSTRACT

The purpose of the present study was to investigate word meaning and its development in primary school children (6-12 years). It was argued that the learning and development of the meanings of words such as **pain** cannot be primarily explained by means of ostensive definition. Furthermore, existing theories of word meaning which deal predominantly with substantive words, fail to account for the learning of non-ostensive words.

The pertinent psychological, linguistic and developmental psycholinguistic approaches to word meaning are reviewed briefly. The prototype approaches to word meaning are modified to apply to non-ostensive words. The focus is on conceptual meaning, that is, the way in which the senses of a word alter in different contexts. It is argued that the meaning of the word is its use in a diversity of linguistic contexts. The term "grammar" is applied in a unique way to encompass the meaning of the word (which stems in part from the words with which it co-occurs) as well as its selective use with other words in the language.

Ninety-five metalinguistically-phrased tasks comprising short questions and picture-story sequences were analyzed in depth. The tasks were administered individually. A flexible interview afforded additional probing for each question. The analysis comprised percentage scores of responses at different age levels together with verbatim transcripts and qualitative descriptions.

Uniformity, variation and developmental trends were found on different tasks for any particular word. Developmental trends were noted in children's understanding of particular words (for example, **same**), thereby extending the findings of previous researchers. There was evidence for a progression in children's ability to take into consideration that a word alters its sense according to the linguistic context in which it occurs (for example, **same** as it relates to **chair** versus **dress** versus **pain**). A comprehensive account of the word's meaning could be established when a diversity of tasks was applied for each word. Children of different age levels employed different strategies in answering the questions posed.

A model is proposed to describe the development of the meaning of non-ostensive words during the primary school years. It is suggested that psycholinguistic studies on word meaning be re-evaluated and that language and reading programmes incorporate the notion of "grammar". Application of this approach to the study of substantive word meaning in preschool children has important implications for theories of word meaning and for therapeutic intervention.

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CHAPTER 1: INTRODUCTION

"What is a sentence?"

"A sentence is something that you copy from the board and that you have to get right" (6 year old)

"What do you do when you have a pain?"

"Put a plaster on" (6 year old)

The meanings that children assign to words often remain hidden from adults. Somehow, beyond the preschool period, we imagine children as 'little adults' in their language abilities because they display few errors in their spontaneous productions. Preschool children's spontaneous utterances, on the other hand, are endless sources of enchantment for receptive adults. It is only when we ask older children questions of the type above that we give them free rein to express their ideas, which are often so totally unexpected in terms of our own adult view of the world. Older children differ from younger children both in the extent of their knowledge of word meaning and in how much they are able to reveal of it.

The first quote above reveals a 6 year old's understanding of a term in metalanguage, namely 'a sentence'. His explanation of this term differs in comparison to explanations provided by adults and older children. The latter offer explanations such as "A sentence is a string of words put together to convey meaning". The second quote above highlights the restricted understanding of the word pain by another child as well as the emphasis on the observable, tangible aspects of its meaning. Her answer displays misunderstanding but is sensible in terms of the question posed. It is part of our experiential knowledge that we may put a plaster on in certain cases in which we experience pain. This answer is therefore possible (Lanham, 1985) though it is not usual. This child may also have been trying to attach meaning to what appeared to her as a bizarre question (Hughes and Grieve, 1980). However, it is of importance that older children, on the other hand, would argue that you "go to the doctor".

Leech (1981) discusses the phenomenon of factual plausibility, that is, that we try to assign a meaning to utterances even if we have to set aside semantic rules and draw on the metaphoric use of language.

The person who utters the question has a meaning for it. The listener then attempts to find a meaning for it. In the present study, factual plausibility may influence the children's responses. For example, 'Can you give someone a pain?' may lead the child to conclude, "Well, I can kick someone and, in that sense, yes, I can give someone a pain". However, if there are commonalities between children of different ages, then it would suggest that children of different ages go about making sense of what may appear to them as bizarre questions in the same way as do their peers. This would then enlighten us as to their understanding of the words in the tasks. The present researcher is interested in determining which aspects of the meanings of specific words are violated by children of different age levels. Particularly, whether he fails to take account of certain aspects of the meaning of the word as it relates to the other word because it is argued that the meaning of the word is, in large part, determined by the linguistic context in which it stands.

Vocabulary tests which have been commonly applied in the fields of psychology and speech-language pathology (for example, the Peabody Picture Vocabulary Test, Dunn, 1965; the Clinical Evaluation of Language Functions, Wiig and Semel, 1980) take little account of developmental differences in children's understanding of words. I was led to question our use of the term 'vocabulary', whether we should regard it as a dynamic rather than a static term. To date it has been considered an all-or-none entity, either incorporated within the child's repertoire or not.

Language therapy has been influenced by the same underlying, premisses. We teach the word in a single context and assume that the child will do the rest. However, we have failed to assist the child in generalizing the word to a diversity of linguistic contexts. Recent work by Prutting (1979, 1983) emphasized the need to teach the child the semantic roles of a word (such as agent, instrument, location) in different language functions, and vice versa. According to Halliday (1975) and to Greenfield and Smith (1976), language may perform a number of functions : instrumental (to satisfy the child's needs in terms of goods or services), interactional (to establish and maintain contact with those of importance to the child), heuristic (to ask about the environment), performative (occurring as part of a

child's actions), volitional (to obtain a desired response). However, researchers have not emphasized how one word influences another to affect meaning. Since applied research stems from linguistic and psycholinguistic theories, I was stimulated to question the assumptions on which these theories are built.

I was inspired by the later work of Wittgenstein (1953) insofar as his criticisms of certain philosophical theories led me to question some basic assumptions of psycholinguistic theories. It must be emphasized, however, that this study does not attempt an interpretation of his work nor does it attempt to validate or refute his position. Wittgenstein's work has been interpreted in many ways, but; most important, he did not expound a theory of word meaning; he did not attempt to apply his ideas to the development of word meaning in children; and philosophical approaches have validity independent of empirical investigation. I have drawn on certain of Wittgenstein's terms which encompass my ideas most clearly, (for example, "grammar") but I apply them differently from his original use and within a developmental psycholinguistic framework.

The term "grammar" encompasses the alterations in sense that a word undergoes in different linguistic contexts as well as the meaning it derives, in part, from the meanings of the words with which it co-occurs in everyday language. Kooij (1971, p.118) explains that :

"The verb **hate** will be understood differently in the sentences I hate soup, I hate Kathy, and I hate lies, but we may wonder whether this entails **hate** having different senses or whether these different interpretations are only contextual specializations of one and the same sense...The word **big** can mean 'momentous', 'important', and here the relation between the senses is much less gradual, though still not nonexistent".

In the present study, **hate** is regarded as having different senses when applied in these contexts, all these senses contributing to the meaning of the word.

I found that linguistic and psycholinguistic theories are generally built upon one of the following assumptions :

i) They assume that a word has a core meaning which can be established outside of any context and that its co-occurrence with

other words is a function of its established core meaning and its syntactical constraints. I propose that part of the word's meaning arises out of the meanings of the other words with which it commonly co-occurs.

ii) These theories propose that a word is simply a label attached to a preformed concept (for example, Nelson, 1973). This may suggest that the context does not add to our understanding of the word: the concept, once learned, is in the child's repertoire and the word provides only a means for verbalizing the concept. It could also suggest that the concept is dependent on context but once learned, the name is simply a label used to express that concept. The present notion of "grammar" suggests that a word is more than simply a label that attaches to a previously-acquired concept but that the word adds to our understanding of the concept.

iii) Many linguistic and psycholinguistic theories suggest that words are learned primarily by means of ostensive definition which fails to account for the altered senses of the word in different contexts. (The term 'sense' as used in this thesis incorporates facets of the meaning of the word that arise from its co-occurrence relations). They suggest that it is by means of ostensive definition that children learn words such as pain. We can point to the pain behaviour or to manifestations of the pain but not to the pain itself and ostensive definition must necessarily have only limited explanatory value (words such as pain are referred to as 'non-ostensive' words in this study)

I was led to realize that these assumptions are challengeable. Previous researchers (for example, Katz and Fodor, 1963; Katz, 1972) addressed questions such as polysemia (multiple meanings). However, they failed to explain adequately the way in which a word alters its sense according to the other words with which it commonly co-occurs. These theorists draw on a syntactic basis together with feature analysis and they make no reference to any aspect of meaning stemming from its different senses in co-occurrence relations. Collocational meanings take account of the words, with which a particular word can co-occur but these focus on associative meaning rather than on conceptual meaning (Leech, 1974).

As R. Clark states in her discussion of syntactic development (1982, p.12):

In the uncharted complexity of a child's growing ability to communicate, certain anchors have apparently been taken entirely for granted. Indeed, their firmness has hardly been questioned.

This applies equally to the study of word meaning.

I argue that non-ostensive words do not have a central, core meaning but rather, that the senses of a word alter in accordance with the words and discourses with/in which that word occurs. A discourse "might be defined as a stretch of language which can be represented on the deep semantic level as a single network. For example, 'Brutus killed Caesar. This was because he loved Rome' would be characterised as a discourse" (Leech, 1974, pp.284-285).

As an extension of this argument, it is suggested that any definition of a word in isolation can only encompass a part, rather than the whole, of its meaning. Certain senses of words overlap in particular contexts, that is, words have fuzzy boundaries (for example, *pain* and *ache*). The area of overlap of the two words is , in this case, conceptual and the area of 'non-overlap' is partly stylistic and partly conceptual (Lanham, *ibid*). As an example, *ache* tends to be informal in style: we talk of 'a tummy ache' but not an 'abdominal ache'. We can also talk of a 'sharp pain' but not of 'a sharp ache' which may be due to a difference in the feature relating to duration. Similarly, 'I have an excruciating pain' is acceptable but 'I have an excruciating ache' is not. Here, a feature relating to degree differs for these two words. Phrases such as the 'pain of parting' and word combinations such as 'heartache' seem to be collocative, that is, tending to co-occur. Overlap between semantically-linked words will necessarily vary. In the present study, the notion of fuzzy boundaries was drawn from prototype approaches to the study of concept development but was modified to accommodate the present interest in the meanings of non-ostensive words.

Finally, I recognize that existing theories of word meaning account predominantly for substantive or ostensive word meaning rather than for the learning of non-ostensive words. The majority of studies on

word meaning have been carried out with preschool children. Furthermore, metalinguistic studies which deal with older children have not been primarily concerned with children's reflection on word meaning. In particular, they have not focused on the meanings of non-ostensive words and they have concentrated on syntactic and phonemic language components.

A few psycholinguistic researchers, (for example, Bowerman, 1978b, 1981) have commented on children's "late errors" in the period 2-5 years and have attempted to account for these in the development of language abilities. However, I felt that there was some aspect of these errors not adequately explained and it was work with language impaired children that suggested the direction which became the basis for this study. The following quotes from language impaired preschoolers add clarification in this regard :

- "I'll strangle your hand" (3¹/₂ year old)
- "Look! There's a piece of blood" (on my arm)
(4 year old)
- "You know what the Rabbi gave me for my birthday?"
"No, what did he give you?"
"A kiss!"
"And could you take it home with you?"
"Yes, I did...on my cheek" (4 year old)

In the first quote, the child uses a word such as **strangle** with a word such as **hand** with which it is not usually applied in English. This particular example violates conceptual meaning: 'blocking off the air passage' is part of the meaning of the word **strangle** and, for this reason, **hand** cannot occur in this context. Similarly, **piece** and **blood** stimulate our poetic sensibilities. Such a remark is acceptable in relation to the real world but is unusual in everyday discourse. "You know what the Rabbi gave me...?" suggests a present of sorts, essentially a concrete object, and "a kiss" violates the listener's expectations in this regard. This could have been used figuratively. However, young children display difficulty differentiating figurative from literal use (for example, Vosniadou, Ortony, Reynolds and Wilson, 1984). Furthermore, they did not give any indication of 'playing with

words', for example, laughing to indicate that they intended the comment as a joke.

The quotes above suggest that we cannot assume that the child can spontaneously use words in the different co-occurrence relations as do adults. Furthermore, children with language impairments have great difficulty in generalizing the use of a word spontaneously from one context to another.

I was encouraged to question whether and in what way, older children (6-12 years) reveal differences in understanding of a word depending upon the context in which that word occurs. As was mentioned above, older children do not display these 'errors' spontaneously and metalinguistic tasks are the only means of delving beyond their superficially apparent knowledge. It is difficult to ascertain why these errors do not surface. Primary school children may be aware of the formal, contextual co-occurrence constraints and their semantic system may be sufficiently refined at this stage so that errors are not apparent, even though their semantic system is not yet as complex as that of adults. The normal child's ability to generalize and overgeneralize words in such a way that errors of this type are minimal, is of importance. It suggests innate abilities to apply, selectively, the meanings of words in a variety of contexts.

Informal questioning about the meanings of words revealed a developmental lag between children's spontaneous productions and their metalinguistic awareness. Metalinguistic questions of the type 'What is a pain?' and 'Can you see your dreams?' highlighted these later difficulties and illustrated the way in which children understand the diversity of use of a word in different contexts and the constraints in the uses of a word with other words. It is the way in which these co-occurrence patterns throw light on the meaning of the word, and the development thereof, which are of major interest in this study.

1.2 Aims of the study

The broad aims of the present study are:

1.2.1 To devise a method for investigating primary school children's understanding of non-ostensive words at different age levels.

1.2.2 To explore the developmental progression in the meaning that children of different ages assign to certain non-ostensive words when applied in different contexts.

More specifically, the aims can be summarized in terms of answers to the following questions:

1.2.1.(a) Is it appropriate to examine school children's understanding of non-ostensive words at different ages using metalinguistic questions together with extended 'probe' questions requiring justifications? Does this method highlight the differences and similarities in the performance of children both within and between age groups?

1.2.2(a) What qualitative differences exist between age groups in the use and understanding of words in particular linguistic contexts? Specifically, in what contexts are the words first applied and what aspects of the word's meanings are focused upon by children of different ages.

1.2.2(b) What is the effect of linguistic context on the understanding and use of particular words by children of different ages?

1.2.2(c) What problem-solving strategies are employed by children as revealed in their explanations to the metalinguistic questions posed? These strategies will be examined according to their interrelationship with the child's understanding and use of words.

1.2.2(d) To what extent can definitions provided by subjects of different age groups be relied on to encompass the meanings of the words?

1.2.2(e) Do words in combination retain the meanings which subjects have assigned when these same words are used in isolation?

1.2.2(f) Does an awareness of fuzzy boundaries of semantically-linked words follow a developmental progression? 'Awareness' is here inferred by the experimenter on the basis of the child's answers.

On the basis of the above findings, the final specific aim was to construct a model to explain the development of the meanings of non-ostensive words during the primary school period.

1.3 Clarification of Main Terms

If the world itself is elusive and ambiguous (and it seems increasingly to be so), then definitions should correspond; nothing would be more misleading than to present clear and distinct definitions in unequivocal terms (Bremer, 1975, p.719).

Definitions run contrary to the present researcher's approach to word meaning. As Lyons (1981, pp.73-74) states

...most everyday words are necessarily somewhat indeterminate in meaning, and, therefore, for theoretically interesting reasons, indefinable.

However, it is recognized that "a definition is useful if it delineates an area of study" (Bolton, 1977). In providing the reader with a framework for understanding this research, these definitions do serve a useful purpose.

The definition of particular terms reflects the researcher's position concerning the development and structure of the processes which these terms serve to describe. Lyons (1977, p.XI) points out that :

...frequently...the same terms are employed in quite different senses by different authors or (that) there are several alternatives for what is essentially the same phenomenon.

In addition, many of the main terms in this study have several specific meanings which are in conflict with their common everyday meanings.

For the above reasons, definitions of major terms in the present study are included within an account of the view of word meaning adhered to by the present researcher. In relation to a particular theorist and when reviewing the literature, terms preferred by individual theorists

are used. (Less important terms are omitted here but are discussed in Chapter 2).

The term "grammar" (enclosed in inverted commas) is drawn from the work of Wittgenstein (1953) but used differently from the original conception. The present researcher applies this term to word meaning to describe the place that the word holds within the language system over a diversity of linguistic contexts : A word is limited in its co-occurrence with other words in the language and the sense of the word alters as it occurs with other words and in different discourses (Detailed in Chapter 2, Section 2.1.1). The term "grammar" has this important difference from the more familiar use of 'grammar' or 'syntax' which comprises deep and surface structures of Chomskian linguistics.

Meaning: The meaning of a word is its use ("grammar") in a diversity of contexts. Meaning is viewed here as conceptual; conceptual meaning being the most important element in communication (Leech, *ibid*). It includes the different senses of the word (particularly, non-ostensive words), the sense shifting with the linguistic context in which the word occurs. Co-occurrence constraints (such as selectional, stylistic and collocational constraints) restrict the use of the word to particular contexts outside of which the word's meaning is violated. Through conceptual meaning, a word may or may not be linked propositionally with others.

Language is a conventional system of communication comprising identifiable elements and rules for combining them (Alston, 1964). Language is exemplified in the verbal behaviour of a particular community (Furth, 1975). It includes syntax, semantics, pragmatics, phonology and morphology.

Communication incorporates verbal language as well as preverbal and nonverbal utterances, namely, vocalizations, gestures and formal sign language. It also takes account of context.

Psycholinguistics refers to the psychology of language and draws on the methods of experimental psychology to investigate the processes involved in using the language system (Bates and MacWhinney, *ibid*).

Developmental Psycholinguistics refers to that branch of psycholinguistics which deals specifically with the nature of early language acquisition and associated cognitive skills (Macdonald, 1978).

Cognition is used in accordance with Neisser (1967) to include those processes which are associated with sensory input and the organization of information, namely, sensation, perception, imagery, memory, problem-solving and thinking.

Perception is the process by which firsthand information is obtained about the world. It is tied to immediate reality and does not include judgement (Piaget, 1969).

Semantics or "linguistic semantics" refers to "the study of meaning in language" (Lyons, 1981, p.16). Semantics focuses on the linguistic system rather than on language use.

Pragmatics refers to the principled ways of extracting meaning from context (Lanham, 1985).

Metalinguistic Awareness is used in its broad sense and refers to the ability to "reflect upon and manipulate the structural features of spoken language, treating language itself as an object of thought..." (Tunmer and Bowey, 1984, p.148).

Context is applied to the family of all situations in which a particular word could have meaning. It includes both the intralinguistic context and the extralinguistic context.

Non-ostensive applies to those words which are learned primarily by means other than pointing or drawing the child's attention directly to one of the denotata (Lyons, 1977 applied the converse to ostensive definition).

"Language games" are the different discourse types in which a word may be used, for example, giving orders, telling jokes, thanking, cursing, greeting, praying, making up a story, forming and testing a hypothesis (inspired by Wittgenstein, 1953, pt.23 but used differently from his original use). The term "language games" goes beyond that of 'perlocutionary acts'. The latter are concerned with effects of

communication on the listener, "language games" is applied to the development of word meaning (Detailed in chapter 2, section 2.3.1c).

Fuzziness is interpreted as overlap in the senses of semantically-linked words, such as **pain** and **ache**. We can separate them out conceptually but in reference to the external world, they may be confused (Lanham, *ibid*) and they may be stylistically different. The difficulty in specifying boundaries in the meanings of these words results in their having **fuzzy** boundaries. 'Fuzziness' and 'fuzzy boundaries' are applied differently from their uses by the prototype theorists (for example, Rosch 1973a) who were concerned with perceptual differences between members of superordinate, basic and subordinate categories, for example, does a whale belong to the category 'FISH'? 'Fuzziness' is preferred to the terms 'vagueness' and 'indeterminacy of sense' with which it has often been used interchangeably.

Ambiguity is used in accordance with Kooij (1971) in its broad sense and refers to that property of sentences which enables them to be interpreted in more than one way because insufficient clues are available for the intended or the optimal interpretation. Most sentences will be "disambiguated" (Palermo, 1983) by the context in which communication occurs. This differs from the more narrow use of the term 'ambiguity' to refer to the way in which more than one lexical or grammatical structure is assigned to the same sentence (Gleason, 1965). In the present study, ambiguity may result from the "grammar" of words in conjunction with a lack of specificity of context.

Sense is applied in accordance with its use in traditional linguistics and in dictionary listings, for example, **same** may be used in an equivalence sense comparing two objects or in an identity sense which focuses on the one object over time; and **feel** in 'I feel the pain' has a different sense from **feel** in 'I feel the dog.' The present use of 'sense' distinguishes, for example, **feel** in **feel pain** from **feel** in **feel awkward**. (See chapter 2, section 2.1.5f).

Sophisticated Confusion¹ a term coined by the present researcher to refer to apparent confusion that occurs naturally as part of the developmental process.

The "grammar" of words highlights the limitations that definitions impose and the importance of viewing these explanations only as a springboard from which to approach this study. The nuances and variations in the use of these terms will be elucidated through the course of the text.

1.4 Plan of the Study

I commence Chapter Two with a discussion of my own approach to word meaning. I then review the relevant linguistic and psycholinguistic approaches to word meaning, concentrating on those aspects of previous approaches most pertinent to the present orientation. Development beyond the period of initial language acquisition is then discussed. This chapter includes a brief review of the following : The role of experience and particularly, learning by means of ostensive definition, innateness and developmental stages: Research on metalinguistic awareness and definitions (a type of metalinguistic task) is detailed and contrasted with the present use of metalinguistic tasks to assess word meaning. This chapter is concluded by integrating the present orientation with the method adopted in this study.

Chapter Three outlines the experimental design and procedure adopted as well as problems encountered and ways in which these were overcome.

Chapter Four comprises the experimental findings on ninety-five tasks for the words **same**, **pretend** and **pain** together with their semantically-linked words.

In Chapter Five, the overall findings and theoretical implications are discussed and related to previous research on the development of word meaning as well as to issues considered during the course of this study.

¹ Note : Thanks to D. Franklin for suggesting this term.

Chapter Six concludes this study with a brief consideration of educational and clinical implications derived from the important findings followed by suggestions for future research.

It will be noted that chapter 2 (the background chapter) is lengthy in comparison to the discussion (chapter 5). In chapter 2, the present approach, because it covers new ground, is detailed in contrast to previous theories of word meaning. In the discussion, the main ideas have therefore, already been presented and only the implications of the findings are necessary to detail and to relate to previous research.

1.5 Conventions

i) Where a word is referred to, it appears in bold type, for example, the word **pain**. A concept or category is indicated by means of capital letters enclosed in a single inverted comma, for example, the concept 'PAIN'. The latter applies mainly in the INTRODUCTION.

ii) Where a term is referred to, it is enclosed in a single inverted comma, for example, the term 'metalinguistic'.

iii) Where an error occurs in a child's utterance it is marked by an asterisk, and it is noted whether it is an error of "grammar" or of syntax.

iv) The questions asked in the tasks are enclosed in a single inverted comma when referred to in the text.

v) He is used as an unmarked term to refer to an unspecified child, male or female.

CHAPTER 2: WORD MEANING AND ITS DEVELOPMENT

This chapter comprises four major sections. In the first section (2.1), the present approach to word meaning, namely, that of the "grammar" of words, is explained and then discussed in light of the constituents of word meaning. In section 2.2, the present view is contrasted to traditional linguistic and psycholinguistic approaches to word meaning, specifically, the feature theories and the prototype approaches. The third section (2.3) is concerned with the development of word meaning. The fourth and final section (2.4) integrates the present approach with the method adopted to investigate the development of word meaning in primary school children.

Wittgenstein (1953) pointed out that:

...the question 'What is meaning?' tends to attract answers which are either so general as to be almost vacuous or so narrow in their definition of 'meaning' as to leave out of account most of what ordinary users of a language think is relevant when one puts to them more specific questions about the meaning of this or that expression in their language (Lyons, 1981, p.32)

Lyons (1977) follows the view that there are a range of meanings for the word **meaning**: there are similarities and differences between the different uses of the word in different contexts. He states (p.3) that

...the meanings (or senses) of 'to mean' and 'meaning' exhibit a network of similarities and differences such that it is impossible to say that one of these meanings is totally unrelated to the others.

Alston (1964, p.10) offers the following uses of **mean**:

- i) That is no mean accomplishment (insignificant)
- ii) He was so mean to me (cruel)
- iii) I mean to help him if I can (intend)
- iv) The passage of this bill will mean the end of second class citizenship for vast areas of our population (result in)

- v) Once more life has meaning for me (significance)
- vi) What is the meaning of this? (explanation)
- vii) He just lost his job. That means that he will have to start writing letters of application all over again (implies)

Lyons (ibid, pp.31-32) cites Wittgenstein's (1953) response to the question "What is meaning?" as "There is no such thing" and emphasizes that this response must be taken seriously:

It clearly makes sense to enquire about the meaning of words, sentences and utterances, just as it makes sense to ask what they mean. In doing so, we are using the English words 'meaning' and 'mean' in one of their everyday metalinguistic functions...

It was part of Wittgenstein's purpose to emphasize the diversity of communicative functions fulfilled by language.

Lyons (ibid) adopts a "broad view of meaning" and assumes that there is an "intrinsic connection between meaning and communication", a view commonly accepted by philosophers, psychologists and linguists and followed in this study.

2.1 Approach adopted in the present study

The present approach is discussed according to the following topics: "grammar" and the meaning of non-ostensive words; concepts and word meaning; linguistic concepts and word meaning; the role of perception in the development of linguistic concepts; and, constituents of word meaning.

2.1.1 "Grammar" and the meaning of non-ostensive words

Ursula (3,4 years): "I have a pain in my tummy".
 Mother, "You lie down and go to sleep and your pain will go away".
 Ursula "Where will it go?"
 (G. Matthews, 1980, p.17)

The humour in this exchange rests upon the sense that the words go away adopt when used with the word pain. Mother uses go away to mean 'disappear' whereas Ursula applies it to mean 'movement away from

a point'. **Go away** assumes other senses in other linguistic contexts, as G. Matthews (ibid, pp.17-18) elaborates:

Grandma and Ursula's dog go away by going to another place. Grandma goes home, the dog goes outdoors. Both may come back by returning from the place to which they have gone...

However, "Does a puddle of water go away by going to another place? Not really..."

A spot on Ursula's dress, say, one made by a bit of marmalade at breakfast, may go away when the dress is washed...Perhaps it will disappear altogether

and ...the squeak in Ursula's tricycle. It may go away when the wheel is oiled. It certainly doesn't go to another place, yet it may come back.

Humorous examples abound in the spontaneous expressions of preschool children. The examples above do not demonstrate a violation of selectional, collocative or stylistic constraints (see section 2.2.2). **Pain** can co-occur with the words **go away**: the features for each word are compatible (selectional constraints); collocative meaning plays no part since these words do not necessarily tend to be used together in the language; and style is maintained. However, it is clear from the examples cited, that **go away** takes on a specific sense when it occurs with **pain** in contrast to its co-occurrence with **dog**, **puddle**, **spot** and **squeak**. It is these alterations in senses of a word in different linguistic contexts which comprise the notion of "grammar" as here proposed.

Children's early errors elucidate the "grammar" of words but these errors are few compared with the numerous unacceptable forms that could possibly pertain. Another example, from a language-impaired child in a clinical situation follows:

Mark (4 years): (experiencing pins and needles for the first time) "It's pain, it won't come out" (rubbing his legs). "If you do this" (wiggles his toes), "it comes out".

One can cite endless examples similar to those above to illustrate the differences in sense for any word depending on the words with which it co-occurs. As Wittgenstein states (1953, pt.11):

Think of the tools in a tool-box: there is a hammer, pliers, a saw, a screw-driver, a rule,

a glue-pot, glue, nails and screws. - The functions of words are as diverse as the functions of these objects. (And in both cases there are similarities).

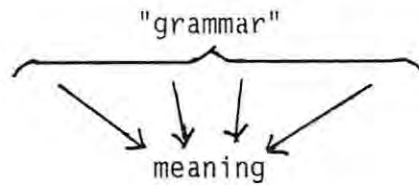
This aspect of a word's meaning has not been adequately explained in traditional linguistic approaches nor has it been investigated in psycholinguistic studies to date. It is this characteristic of word meaning which is termed "grammar" by the present researcher and which is the focus of the present study,

To exemplify further, it is part of the "grammar" of the word **pain** that it takes the kinds of forms 'I have a pain in **my toe**' rather than in **London** or in **my room**. A second example is **feel** a pain where **feel** does not take on the sense of **touch** as in **feel the puppy**. Syntactically equivalent questions such as 'Where do you feel pain?' and 'Where do you feel hot?' necessarily give rise to different types of answers, for example, 'I feel pain in **my head**' and not in **the garden** or **inside**. The use of the term "grammar" was inspired by the work of Wittgenstein (1953). However, it must be emphasized once again that it deviates from Wittgenstein's original use and that no attempt is being made to interpret his philosophy.

We cannot take for granted that when the child learns a word in one context he can naturally use it in a variety of contexts. It is argued that the separate meanings of two words must be altered in order to use the two words in combination. Learning the word **same** and learning the word **pain** does not imply that one can then use the two words together as **same pain**. In the sentence, 'I have the same pain as you', there is a reciprocal relationship between **same** and **pain**. **Same** in this context, cannot suggest that there is one pain which is shared as would be possible with **apple** in the equivalently-phrased sentence, 'I have the same apple as you'. Where the word **pain** is our focus, other words (such as **same**) take on particular senses and become important as part of our evaluation of the meaning of **pain**.

The way in which a word can be used in the language appears to involve a shift in emphasis from the word itself into the "grammar" (that is, from within the word to without). On the other hand, the meaning of the word is highlighted by other words with which it occurs and

involves a shift in emphasis back to the word itself, that is, from without to within. These are necessarily very closely connected.



The "grammar" of a word is its use in different linguistic contexts: it splays outwards drawing on other words in the language, for example, same in the contexts of same ball, same apple and same pain. Meaning, on the other hand, is the link that the word has with the language from the point of view of the word itself. Meaning brings all these diverse uses to bear on the word itself although it does not have a central core. Emphasis here is on the word, for example, same. "Grammar" and meaning are therefore, complementary parts of a single process. The "grammar" of the word pain tells us what pain is. If we plot all the uses of a word in a variety of contexts we arrive at the meaning of that word.

The "grammar" of a word also relates the word to the language as a whole. Each word is constrained by its "grammar" and can only occur with certain words in the language, for example, the word pain can only be used with words which denote animate objects. "Grammar" therefore, relates the word to other words in the language.

The "grammar" of words has an analogue in chameleon behaviour and may be regarded as the 'chameleon quality' of words. Both alter their 'colouring' according to their surroundings. As with a chameleon, the shift in a word's meaning becomes camouflaged by the use of that word across contexts. Traditional linguistics has focused on the chameleon as unchanging, since it blends so perfectly with its surroundings. What has been ignored is the subtle colour variation that the chameleon undergoes to suit its surroundings. These colour changes are on the surface yet together, they tell us about the chameleon as a whole. Similarly, "grammar" refers to the nuances of colour that a word undergoes in different linguistic surroundings. The changes are on the surface but together, they constitute the word's meaning.

Child phonology provides another useful analogy for explaining the term "grammar". A child with phonological problems may produce a particular sound correctly in one word but incorrectly in another word. Assimilation of one sound to those that precede and follow influences this production. It is as if the sound alters its function according to the other sounds with which it comes into contact. Similarly, this process operates for the "grammar" of words but it concerns words rather than sounds in the linguistic environment.

2.1.2 Concepts and word meaning

The importance of clarifying one's own philosophical or theoretical position is emphasized by Kuczaj (1982a) who states that:

...there are different theoretical camps in the study of language acquisition which may lead to different accounts of the same data...(p.xii)

...theoretical biases not only affect integration of data but may also affect the data that is collected since different theoretical positions may lend themselves to varying sorts of empirical tests...(p.xii)

...the right questions must be asked before the right answers can be found...(p.xiv) (and)

...the types of answers a particular developmental psycholinguist gives to these questions, depends on his or her assumptions about the nature of language and the nature of the language acquisition process (p.xii)

An entire book could be devoted to the topic of concept development as many theorists have done (for example, Bolton, 1977). However, it is within the scope of the present study only to offer a resumé of the present orientation. A few major principles and controversies within this area will be dealt with briefly. Bolton (ibid, p.47) defines a concept as

...a stable organisation of experience which is brought about through the application of a rule of relation and to which is assigned a particular name

This definition includes three important components, namely:

To say that the concept is a particular organisation of experience suggests that one point of departure must be a consideration of the development of concepts from their roots in the achievements of

perceptual organisation; to say that it is brought about through an act of relation implies that we must look also to the achievements of sensori-motor intelligence as preparing the way for conceptual development; and to say that the concept is characterized by there being an agreed name for the experience means that language plays an indispensable role in concept formation (Bolton, *ibid*).

The term 'concept' can be applied in many ways. The present researcher differentiates 'linguistic concepts' from Piagetian-type concepts. Piaget (1926, 1929, 1951) discusses cognitive concepts to explain certain behaviours that the child demonstrates at different stages of development. 'Concept' as used in this sense, is action based or nonlinguistic. On the other hand, to argue that the child has the concept of 'CHAIR' asserts that he knows what a chair is. Part of this knowledge lies in his ability to use the word *chair* in numerous and varied situations. In this case, there is no prelinguistic concept of the word *chair*.

It is argued that the child will develop a perceptual (rather than conceptual) knowledge of 'CHAIR' if he sits on a lounge chair, a kitchen chair, a diningroom chair and a stool. All of these items of furniture may be called 'chair' by the child. Only when he learns the word *stool* will he differentiate a 'CHAIR' from a 'STOOL', that is, he has arrived at a conceptual distinction between the two. He does not acquire the concept of 'STOOL' prelinguistically first and then simply attach a name as a 'label'. The nonverbal behaviour would not enable him to differentiate a 'CHAIR' from a 'STOOL'. It is only with his use of the word(s), 'use' implying both comprehension and expression, that he learns this distinction.

For a child to learn the word *chair* may require that he already has other prelinguistic concepts, such as Piaget's 'object constancy', in his repertoire. He must understand that a chair does not disappear when it is out of his line of vision. His concept of 'CHAIR' would otherwise differ markedly from adult use since it would include the idea that a chair ceases to exist when it is out of sight.

The following quote from Schlesinger (1977, p.166) highlights the intricate relationship between language and concepts:

A modicum of cognitive development must precede any learning of language, because language remains

meaningless unless referring to some already interpreted aspect of the environment. However, once some structuring of the environment has occurred and some primitive utterances can be understood in accordance with the structure, there is room for an influence of the form of these utterances on the child's cognitive development; they may direct him towards further interpreting events and states referred to.

Non-ostensive words, such as **pain**, are difficult to explain as having been acquired nonverbally first. The child learns the concept through the use of the word, rather than developing a prelinguistic concept to which he then attaches a label. What many theorists call a 'concept', is rather, the use of the word in varied contexts.

Piaget's general conclusion that cognition precedes language in early development, must be viewed with caution where the term 'cognition' deviates from Piaget's original use. The term 'cognition' does not refer to linguistic concepts. Rather Piaget's use of the term 'cognition' refers to 'natural human responses' at particular stages of development in relation to the environment(s) in which humans find themselves. Piaget views these stages as biological but they could equally be acquired and still be 'natural human responses'. To say that 'cognition precedes language' is acceptable if we apply it to natural human abilities but not when we use it to refer to linguistic concepts.

Many psycholinguistic researchers have argued or have accepted as a basis for their studies, that children acquire the concept of an object to which they attach a word as label. As Macdonald (1978, p.241) points out:

Piagetians are sometimes too keen to see early development of cognitive skills as 'causing' the development of language. But, sensori-motor intelligence was not put forward as an explanation of language development

Nelson (1973) argues that object words attach to already established prelinguistic concepts. Later, she modified her view to allow for the influence of object words on some object concepts (Nelson, Rescorla, Gruendel and Benedict, 1978). Clark (1973), on the other hand, initially emphasized the importance of object words in the formation of object concepts. She later elaborated her view (1977) to include

mechanisms for mapping words onto pre-existing concepts. Similarly, Vygotsky (1962) describes ordinary language concepts in which the word follows the learning of the concept in contrast to scientific concepts in which the word is learned first after which the concept emerges.

Both Clark's and Nelson's views have been described as "interactionist" allowing for numerous possible relationships between language and concept formation depending upon the type of language input and the types of concept involved. For certain concepts, language input may influence the child's cognitive structuring from the beginning but other concepts may be partially or fully formed by the time the child attaches a word to these concepts. Non-ostensive words are particularly evasive when attempting to draw on the idea of a word as label in explaining their development. As Bowerman states (1982, p.344):

The argument is not that the child is incapable of structuring and interpreting the world without language; it is rather, that the child's nonlinguistic way of viewing the world cannot serve directly as the semantic basis for language.

The present approach complies with the interactionist approaches. However, it is suggested that non-ostensive words are particularly difficult to explain in terms of the concept preceding the word in development. The distinction made by Vygotsky (ibid) may be suitable for separating ostensive from non-ostensive word meaning. For non-ostensive words, it is the word which enables us to distinguish between semantically-related concepts such as 'PAIN' and 'ACHE' or 'SAME' and 'SIMILAR'.

Confusion arises because Piagetian-type concepts have not been distinguished from 'linguistic concepts' and because non-ostensive words are largely neglected in theories of word meaning (see sections 2.2.1 and 2.2.3 on feature theories and prototype approaches). Further confusion arises because 'cognition' and 'conception' are often used interchangeably (as is clear in section 2.1.4).

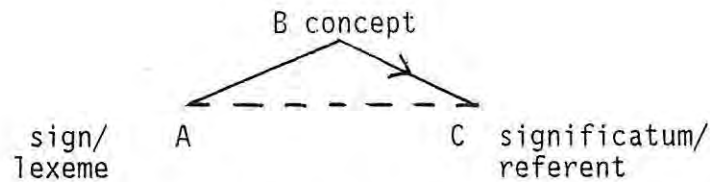
I do not aim to suggest that the linguistic concepts being studied are based exclusively in language as their name might suggest. However, as will become clear, I regard language as playing a crucial role in the development of these concepts. Piaget's logically-necessary

concepts, by their very nature, can be easily disassociated from language whereas 'linguistic concepts' cannot. A summary distinguishing Piagetian concepts from linguistic concepts follows:

<u>Piagetian Concepts</u>	<u>'Linguistic Concepts'</u>
- Broader eg. object constancy	- Narrower eg. concept of 'CHAIR'; concept of 'OBJECT'
- Language is not necessary and does not play a crucial role in development of these concepts	- Language is not necessary but, in normal circumstances, it plays a crucial role in the development of these concepts.
- Perception parallel but interacting through development. Both perception and these cognitive concepts have their base in actions (Piagetian view, 1969)	- Perception of the object and its function enables the child to obtain a perceptual knowledge of the object. Use of the word adds to the development of the concept eg. 'CHAIR' vs. 'STOOL'
- These concepts develop as part of biological maturation in conjunction with the child's interaction with his environment	- These concepts develop as a result of personal experiences with adults in the child's environment together with innate abilities
- Necessary for the development of everyday concepts	- Not necessary for the development of Piagetian concepts
- No abstract image of the concept built up in the mind	- No abstract image of the concept built up in the mind
- Are concerned with mental structures not with linguistic expression	- Emphasis on linguistic expression
- Stages in development universal across races and cultures though differing in rate	- No apparent stages from research to date

2.1.3 Linguistic concepts and word meaning

Ogden and Richards (1923, p.11) depicted the meaning of linguistic expressions in the form of a triangle with the word signifying the thing by means of mediating concepts. The relationship between the lexeme and that which it signifies is therefore, indirect. This relationship is depicted below:



Ogden and Richards (ibid) view the relation of reference as holding between the concept (B) and the significatum (C) in contrast to those who favour a referential theory which emphasizes that words stand for things, that is, the relation of reference would hold between the sign (A) and the significatum (C).

Lyons (1977) points out that there is considerable disagreement about the details of the relationships between A, B and C. Lyons (ibid) also argues that there is no evidence to illustrate that such concepts play any part in everyday language-behaviour. We can build up an image of a table when we utter the word but this does not mean that we do so, or need to do so for all words. In addition, to say that we must have acquired the concept of a table before we can be said to know the meaning of the word table, does not imply that this concept is involved in the production and comprehension of most utterances which include this word (see Section 2.2.3). Lyons (ibid) goes on to argue that any theory of semantics which defines the meaning of a word in terms of what it signifies simplifies the issue when applied to all lexemes versus those which apply only to objects. This is of importance in relation to the present emphasis on non-ostensive words.

The advantage of an approach such as that of Ogden and Richards' (ibid) is that it suggests that the sign has no meaning unless it has a concept attached to it and a concept is much richer than a lexical item. The present argument is that the word should be viewed as more than simply a sign and that the word enriches the concept. Furthermore, the triangle above does not stipulate which component develops first. The different components may be made accessible only in metalinguistic use and not in everyday language use.

In accordance with Bolton's definition (ibid, p.47) of concepts, language is regarded, in the present study, as playing an "indispensable role in concept formation". Under normal circumstances, language plays a crucial role in the development of

concepts such as 'PAIN' although it is not a sufficient condition for this development.

It is argued that language organizes concepts in a dynamic way, that it allows for the cross-classifying of concepts which builds into the conceptual system itself, thereby altering its nature and, most likely, its complexity or the complexity of its application, as well. In this way, language fills out the concept. We would assume, on this basis, that a person with limited verbal language (for convenience, referred to here as 'nonverbal') will develop concepts which are at a different level or of a different type from those of a verbal person. The distinction between the concepts 'PAIN' and 'ACHE' may be idiosyncratic for the nonverbal person and we cannot ascertain the exact nature of this difference since verification would require the use of language.

It is important that the dynamic aspect of language is not lost in our explanation of the role that word meaning plays in concept development. The 'label approach' tends to disregard this dynamic characteristic. It is argued by the present researcher that what the child acquires during the preverbal period cannot be called 'concepts' to which he later attaches a name or label. These may be considered as the rudiments of concepts. The 'name' is much more than just a label - for the verbal person it establishes the scope of application of the concept although exact borders cannot be delimited.

We attribute a particular concept to a nonverbal person on the basis of the behaviours he presents. If the behaviour resembles that of verbal adults sufficiently, we grant that he 'has' that concept in his repertoire. We are willing to apply the concept 'PAIN' to the type of behaviour exhibited by the nonverbal person. The following example from the pilot study illustrates the difficulty we experience when assigning concepts :

E: (Experimenter) 6 year old :	Can a car have a pain? No - 'cos it's not a real person
E: child :	Can a dog have a pain? Yes
E: child:	How do you know when a dog's got pain? When it's sore, it's lying down, it can hardly move.

been more widely accepted than Piaget's explanation of two sharply differentiated processes (Meltzer, 1976). Briefly, Bruner (1966, p.2) states that :

Much of perception involves going beyond the information given through reliance on a model of the world of events that makes possible interpolation, extrapolation and prediction.

The perceiver plays an important role in interpreting, categorizing and transforming the stimulus information. Bruner (ibid) proposes that the basic processes of categorization are essentially equivalent for both perception and conception but that the immediacy to experience of the attributes used to categorize objects and events differ. Bruner's model of perception requires an adult perceiver and has only limited application to very young children whose conceptual categories are still being formed (Wohlwill, 1962).

For Piaget (1969), on the other hand, perception is "centered" in the child and does not include categorization and abstraction. The forms of perception, though sharing a common sensori-motor origin with conception, are "discovered in the object" (Piaget, ibid, p.303) and do not follow a qualitative progression leading to the development of intelligence but rather advance to a higher-order perceptual organization. The forms of intelligence direct perceptual activities since one perceives better what can be constructed and reconstructed (Piaget, ibid). Intelligence has its basis in actions and operations rather than in perception.

With regard to linguistic concepts, it is argued that perception is important for the formation of certain concepts but is not a sufficient condition for concept formation. The child has to perceive objects in his environment in order to form concepts of these objects. J.J. Gibson's ecological approach to perception (1966) analyses first, the environment, over and above the senses, then the information itself and finally, the perceiver. Neisser explains (1984) that we must understand the information available before we can understand how people use it. Such aspects as movement and object position add to our information.

When applied to non-ostensive words, it is difficult to explain what would be perceptually important for the formation of concepts such as

'PAIN' or 'ANGER'. An entire situation contributes to the child's learning of these concepts. "Grammar" focuses on the co-occurrence of one word with other words and discourses in the language rather than on the diversity of objects to which a word can be applied. If objects were focused upon, perceptual similarities would be easily isolated as so many researchers have done (particularly Clark, 1973) when explaining the overextension and underextension of words (see section 2.2.1).

The role of perception appears to be emphasized in an ostensive definition approach to the learning of word meaning.

2.1.5 Constituents of word meaning

Lexemes and words; sense and its relation to the "grammar" of words; reference, connotation, and ambiguity as they pertain to the sense of words, receive attention in this section.

2.1.5(a) A lexeme is a "'fully meaningful' element" (Lyons, 1970, p.321), "...a unit which is manifest in one 'form' or another in sentences, but which is itself distinct from all its forms" (Lyons, *ibid*, p.21). Lexemes are "...the words and phrases that a dictionary would list under a separate entry" (Lyons, 1977, p.23) and denotation of a lexeme is independent of its use on different occasions (Lyons, 1981).

In the present study, it is asserted that a word alters its senses according to the words with which it co-occurs and that an investigation of word meaning must, therefore, take into account the linguistic context in which the word occurs. For this reason, words rather than lexemes are referred to throughout this study. It is not being denied that lexemes are useful but rather, that they restrict our view of word meaning.

2.1.5(b) Sense and its relation to "grammar"

People often think of the meaning of words as if each of them had an independent and separate existence. But ...no word can be fully understood independently of other words that are related to it and delimit its sense...(Lyons, 1981, p.75).

Sense has been defined as the set of "relations that hold among linguistic expressions" (Lyons, *ibid*, p.58). Denotation relates expressions to classes of entities in the external world and is both interdependent upon, and inversely related, to sense. As an example:

the denotation of 'animal' is larger than that of 'dog' (all dogs are animals, but not all animals are dogs), but the sense of 'animal' is less specific than that of 'dog' (Lyons, *ibid*, p.60).

The relationships between senses of a word or expression have been discussed by numerous theorists and researchers. Componential analysis (the analysis of the sense of a lexeme into its component parts) attempted to formalize the sense relations that hold amongst lexemes (Lyons, 1981). It was argued that the sense of every lexeme could be analysed in terms of a set of more general sense-components or semantic features. Some or all of these semantic features would be common to a group of lexemes in the vocabulary (Lyons, *ibid*). (Criticisms of this approach are included in section 2.2.1).

The complexity of relations holding amongst senses is revealed in the following quote:

The speaker says that he will 'strike a match'; also that 'the match was won' by so and so. Has he internalized two different words or only one? We will doubtless judge that there are 2 words, match₁ and match₂. Their identity of form has no semantic motivation. He hopes that 'the weather will be fair'; he also says that his wife has 'fair hair'. Here we might judge that there is one word, fair, which has been used in 2 different senses. Or perhaps we might not. It depends on when we see a connection and when not a connection? (P. Matthews, 1979, p.68).

Kooij (1971) provides other examples, focusing on whether there are one or more senses rather than on whether there is one word or two senses.

Added to this is the observation that "...no word is ever limited to its enumerable senses", that it "always carries within it the qualification of 'something like'" (Bolinger, 1965, p.567). For

example, a sense may be extended as when a television screen was called a 'screen' (P. Matthews, *ibid*).

It is difficult to specify the number of senses for any particular word as it is to clearly distinguish one sense from another. What constitutes a new sense is not always clearly distinguished from that which constitutes a new word. Synonymy adds another dimension, for example, **pain** and **ache** may be used interchangeably in certain contexts but not in others. Furthermore, "...it is possible to use a word intelligibly without using it in any of its senses" (Alston, 1964, p.96), as occurs in metaphorical language.

2.1.5(c) Reference ...has to do with the relationship which holds between an expression and what that expression stands for on particular occasions of its utterance (Lyons, 1977, p.174).

A particular word labels a particular object in the world (Lanham, 1985). Many theorists (for example, Frege, 1892; Carnap, 1947) and researchers (for example, Anglin, 1978, 1983) have distinguished reference (extension) from meaning (intension) although the usefulness of such a distinction has also been queried (for example, Goodman, 1972; Quine, 1969; Wittgenstein, 1953).

The extension of a concept (its reference) concerns the set of objects or events that are instances of the category or concept (Anglin, 1978, 1983) for example, for "animal", 'dogs' and 'cats' may be included as instances of extension. Intension, or the meaning of a concept, concerns those properties that are true of the category, that is, that define the concept or word (Anglin, *ibid*) for example, for "animal", 'lives', 'breathes', 'digests' may be included. Anglin (1983, p.262) cautions against inferring intension from extension. However, establishing the extension of words for any individual, enables one to formulate hypotheses about the intension of those words, and those hypotheses can be subjected to further tests (Carnap, 1947). Many philosophers have also used the term 'sense' for what others would describe as 'meaning' (Lyons, *ibid*).

In the present study, the term 'sense' is reserved for the different facets of its meaning. A distinction between 'reference' and 'sense' adds little to the ongoing discussion because reference is limited

where non-ostensive word meaning is concerned (discussed further in section 2.3.1a).

2.1.5(d) Connotation is also closely related to sense. As P. Matthews explains (1979, pp.69-70):

Ah! But now you are talking about the emotive use of language. A pigsty, for example, is a place where one keeps pigs. But I might say of the Bloggin's that 'they live in a pigsty out in Oxfordshire'. This is to use pigsty in a further figurative sense. Or maybe it is to coin a metaphor for the occasion...

The term 'connotation' may lead to confusion. Philosophers generally contrast it with 'denotation', although the way in which it is contrasted is not constant through the philosophical literature (Lyons, 1977). Traditionally, connotation has been connected with the intentional aspect of meaning, that is, "the defining property of the class" (Lyons, 1981). Denotation has been associated with the extensional aspect or "the class of entities that it defines" (Lyons, 1981). P. Matthews (ibid) points out that ordinary words tend not to have exact extensions or intensions.

The term 'connotation' can also be applied more colloquially to the psychological associates of a term which often include an affective component, as distinct from its extension and intension (Livingston, 1982). 'Connotation' may therefore, be regarded as part of the sense of a word. There are standard as well as idiosyncratic connotations, standard connotations being built into the linguistic system and idiosyncratic connotations stemming from the external world and relating to individual experiences. As an example of the latter, a word may have an emotional association for one person but not for another.

Connotations stem from extralinguistic factors and penetrate into the word's meaning. Lyons (1981) points out that in particular instances, two or more descriptively synonymous expressions may differ with regard to the degree or nature of their expressive meaning. He provides as an example the words **huge**, **enormous**, **gigantic** and **colossal** which are "intellectually" more expressive of their users' feeling towards what they are describing than **very big** or **very large** with which they are descriptively synonymous.

Shifts in sense may be marked by style. As an example, a child may more commonly use the word *ache* and an adult the word *pain* when explaining symptoms to a doctor although the unpleasant feeling may be in the same place and of the same type. Similarly, adults use different words when talking to children as opposed to other adults and even children make this distinction when addressing adults versus children younger than themselves versus peers (for example, Snow and Ferguson, 1977).

2.1.5(e) Ambiguity is a sense relation. For example, in the sentence 'I asked him to draw the curtains' (Wiig, 1984) only context determines which sense of *draw* is intended, that is, 'draw a picture of the curtains' or, 'close the curtains'. Here, there are two tokens of one type (*draw*). In the following pair of sentences

i) we are eating the same apple

and ii) we have the same pain,

same in (i) is ambiguous and may refer to either one or two apples (senses of either identity or equivalence); whereas *same* in (ii) necessarily refers to two separate pains and is not ambiguous.

2.1.5(f) The term 'sense' extended

The term 'sense' as traditionally applied, fails to take account of the diversity of uses of the word within any particular sense. As an example, each sense of the word *same*, itself takes on many functions as applied in varied contexts, for example, in sentences with *same pain* and *same dress*. These uses suggest, when two people are present, that there are two pains/dresses. Within this equivalence sense, the use of *same* varies in these two contexts of application. *Same dress* may imply that the dresses are of the same style, colour, and so on. They are able to be compared and exact differences can be pointed out. *Same pain*, on the other hand, may suggest that one person's description of his pain parallels the other's description of his own pain even though they can never be certain of the extent of similarity. This is not applicable only because *pain* is an 'abstract' word and *dress* a 'concrete' word (the latter distinction is queried in section 2.3.1a), but would be equally applicable to examples such as *same thought* in contrast to *same pain*. In both cases, we would be required to describe the experience but *same* alters its use in each case.

Certain senses of words seem to be more easily recognized, perhaps because they are markedly different from each other. Linguistically unsophisticated adults would most likely acknowledge that **same** may be used in an equivalence or an identity sense (if explained in lay terms); that **think** may be applied conversationally as in: 'I think he'll come' or in mental terms (Wellman and Estes, 1984) as in "I'm thinking out this maths problem". Similarly, the use of **believe** may be differentiated in: 'I believe he's come', where it occurs conversationally, from: 'I believe in G-d' (have faith in). Studies to date (for example, Olson and Astington, 1984) have investigated such differences.

The word **feel** in sentences with **feel a pain** and **feel a puppy** may appear to be used in one sense only. However, **feel** adopts a different sense in relation to **pain**. **Feel a pain** may imply that the person groans involuntarily, whereas **feel a dog** involves voluntary action, perhaps like a report in which one puts one's hand in a box and says: 'I can feel a small dog - a puppy!' The word **feel** in a sentence with **feel awkward** introduces another sense of **feel**. In the present study, the term 'sense' is also applied to the following uses of a word: namely, 'be in pain', and 'pretend to be in pain'. **Pain** shifts its meaning in each case, and different criteria are focused upon.

That the word **feel** takes on vastly different uses in these different contexts, suggests that it may have to be learned in different ways. This appears to be counter-intuitive since the length of time involved in learning each word in each of its numerous senses over a diversity of contexts would discount the possibility of children ever mastering the language system. However, this requires assessment in children since it has not been investigated to date.

There is no a priori reason to assume that once the child can use the word in one sense he is able to automatically use it in its other senses. If we are able to take this for granted then it may elucidate factors concerning innateness and generalizing ability in language learning (see section 2.3.2).

The "grammar" of a word involves alterations in senses of the word in different contexts. The meaning of a word is its use in these different contexts. Furthermore, the "grammar" of a word tells us

those words in the language with which it can co-occur. These issues form the basis of the present investigation.

2.1.6 Fuzzy boundaries and the "grammar" of words

...in the world of experience all boundaries show some degree of vagueness, and any formal system which is useful for semantic description must allow us to record or even measure this property (Labov, 1973, p.352).

Numerous theorists have discussed the notion of fuzzy boundaries in relation to word meaning (for example Alston, 1964; Kooij, 1971; Lyons, 1981; P. Matthews, 1979; Wittgenstein, 1953) and since the 1970's it has been argued (for example, Labov, 1973; Lehrer, 1970) that category-boundaries are vague. (This is discussed further in relation to the prototype approaches in section 2.2.3).

The term 'fuzzy boundaries' has frequently been used interchangeably with terms such as 'vagueness' and 'indeterminacy' (for example, Lyons, 1981; P. Matthews, *ibid*). However, Alston (*ibid*, pp.84-85) guards against this:

The word 'vague' is commonly used very loosely (there is no inherent reason why 'vague' should be used loosely or even vaguely) to apply to any kind of looseness, indeterminacy, or lack of clarity. If we leave it in this condition, we shall run the risk of missing important distinctions.

Alston (*ibid*) queries whether every word is vague to some extent: the terms one employs to remove the vagueness will themselves be vague although in different respects. (Vagueness which occurs because of inaccurate use of a word or because of a speaker's idiosyncratic or inconsistent use, is undesirable in communication and therefore, not of interest in the present study).

Baker and Hacker (1980, p.215) point out that Wittgenstein

shows that all language is vague, but that we should not deplore the fact. Vagueness is not necessarily a defect of language...an order containing a vague expression is not necessarily of diminished utility...

Baker and Hacker state (*ibid*, p.217) that:

There is...no sense in speaking of its (language) having a completely determinate sense...But then it follows that it makes no sense to speak of its having a sense which is not completely determinate.

Natural language is "as precise as we need it to be" for the purposes of interpersonal communication (Wittgenstein, 1953, pt.71). P. Matthews (ibid, p.69) describes a skyscraper as "one sort of tall building, but it is vain to try and say exactly how tall". A building has been put up in the nearest village street,

'Heavens!', we say, 'What do they want with that sort of skyscraper?' Suppose someone objected. 'But is it a skyscraper? Look, it is only seven storeys high. If you put it down in Manhattan you would hardly notice it was there'. Well, so what? The village is not Manhattan, and there the description fits.

The word **exact**, as an example, varies with the context throughout all its uses. Wittgenstein (ibid, pts. 69,70,71) argues that there is no definiteness of sense for the word **exact**. However, this makes the word no less useful. As Lyons points out (1981, p.60*):

...the sense of most lexemes, and therefore of most lexically composite expressions, would seem to be somewhat fuzzy at the edges. Similarly, it is very often unclear whether a particular entity falls within the denotation of an expression or not...Indeed, how do we manage to communicate with one another more or less successfully, by means of language, if the descriptive meaning of most lexemes - their sense and denotation - is inherently fuzzy or indeterminate?

Lyons (1981, p.71) points out that vagueness does not impede communication "because we do not usually find ourselves operating in the fuzzy or indeterminate areas of a word's meaning".

Fuzzy boundaries are apparent when we ask ourselves 'How tall is tall?' or 'What constitutes middle aged?' The words **tall** and **middle aged** are fuzzy at their edges. As an example, we are uncertain whether to call someone of 40 or 60 years 'middle aged' (Alston, ibid). However, the central part of the word's meaning is not affected: a 50 year old is, without doubt, middle aged and most adults would draw this conclusion. There is no clear definition of the words **tall** or **middle aged** that accurately reflects how they are used. Yet

we would not argue that a man is short because he is not as tall as a tree in the vicinity.

Where one fuzzy edge meets another fuzzy edge, we get 'fuzzy boundaries' between words such as **same** and **similar** or **cross** and **angry**, particularly when these words are contrasted (as in metalinguistic tasks: see section 2.4). Fuzziness arises because of the unclear boundaries separating one word from another and because of the overlap that occurs in their senses on different occasions. As an example, **pain** and **ache** can be used interchangeably in certain contexts but they differ stylistically in others (as in 'tummy ache' versus 'tummy pain').

Individual variation may occur between speakers when one uses a particular word in a situation where another speaker uses a different word. Fuzzy boundaries may lead to variation in decisions of appropriacy of a word for one speaker on different occasions or between two speakers. An individual may be uncertain as to which word to use in a particular situation because of a conceptual confusion such as whether to use the word **moral** versus **good**, or a perceptual confusion such as whether the colour is **blue** or **violet**. Neither of these types of confusion is of particular concern in this study. A word may also appear to be fuzzy because it evades precise verbal definition. However, the difficulty we have in defining it (see section 2.1.7 below for detailed discussion) arises from its variations in sense in different contexts. As an example, **same** may be applied to mean that two items have all properties in common but we also have a term 'exactly the same' which implies that **same** need only approximate this first use on some occasions.

The term 'fuzziness' is favoured over those of 'vagueness' and 'indeterminacy' because it is neutral, not subject to the romanticism and the complex of connotations which the term 'vague' laboriously trails around. The "grammar" of a word is its all-embracing character, namely what can and cannot co-occur with that word due to its specific properties. The fuzzy boundaries of words adds to our difficulty in being certain what is contained in a 'list' of the 'senses' for any particular word.

2.1.7 Definitions and the "grammar" of words

As was mentioned in the Introduction to this study, words evade clear definitions and definitions fail to encompass the diversity of uses of any particular word. In this way, a definition is not a complete description of a word's meaning. Rather, a definition comprises one "language game" (Wittgenstein, 1953) in which the word may be used. Dictionary definitions and definitions by lay persons are both drawn on in the discussion which follows.

The dictionary definition...is a written record of explicit expressions of the meaning of words. The dictionary represents the cumulative attempts of a literate culture to systematize and explicitly state the meanings of the words in the language (Watson and Olson, in press, p.2).

Bolinger (1965, p.567) describes a dictionary as "a frozen pantomime":

Our problem is only beginning when we consider the pale flowers of that 'nosegay of faded metaphors' that it presses between its pages. A semantic theory must account for the PROCESS of metaphorical invention...all the more so, a theory that stems from generative grammar with its emphasis on creativity. How I make myself understood when I use previously fixed senses that are well known both to me and to my hearer, by a kind of sequence of cancellations, is one thing; how I am understood when I call a chain smoker a fumerole is something else.

Along similar lines, Vygotsky (1962, p.146) describes the dictionary meaning of a word as "no more than a stone in the edifice of sense, no more than a potentiality that finds diversified realization in speech". P. Matthews (1979, p.70) emphasizes that a dictionary defines one word by means of other words which results in the imprecision of one term (for example, *skyscraper*) being reflected in the imprecision of others (for example, *tall*, *high* or *narrow*).

In the present study, it is argued that dictionary and lay definitions do not encompass a word's meaning as does its "grammar" but reveal only part thereof. Definitions constitute only one "language game" in which the word may be used but they fail to take into account its diversity of uses. It is also anticipated that an adult's definition of one word (for example *same*) and his definition of another word (for example *pain*) may not include the specific senses of each of these words when used together (that is, *same pain*). Dictionaries do

include a diversity of uses of a particular word, this very fact highlighting the importance of moving away from an all-or-none perspective on word meaning but this has not been accounted for in psycholinguistic studies to date.

2.1.8 Formalizing the "grammar" of words

The "grammar" of words is difficult to stipulate formally. It would seem to be near impossible to formalize the diversity of every single word over a variety of everyday contexts (for example, **same in same dress, same pain, same seat**). We would have to take into account alterations that occur within different extralinguistic contexts (for example, 'I am wearing the same dress as you' versus 'I am wearing the same dress as I wore yesterday'). Even a lexicon could not possibly state each word together with the other words with which it may co-occur and thereby, indicate how the features alter in each context. An attempt at rigour and formalization moves away from the qualitative richness of the use of the term "grammar". This notion disallows elegance with regard to a theory of word meaning but this may be due to the inherent complexities and the very nature of "grammar".

Weinreich (1966) has pointed out that the senses of a lexeme are infinite because a lexeme takes on a slightly different meaning in each phrase in which it is used. Katz (1972, p.60) warns against "taking seriously the notion of infinite polysemy" since no rule of grammar could enumerate each and every difference in meaning. Katz (ibid) concludes that, in that case, we would have to give up our attempt to explain semantic relations. He argues (p.60) that "speakers have finite brains" and that dictionaries, therefore, store only finitely many bits of information. This is acceptable when formulating a theory of word meaning but from a psycholinguistic perspective, we have still to establish how the child is able to make the necessary adjustments in using a word in different contexts.

Fillmore (1970, p.130) touches upon the "grammar" of words in his discussion of change-of-state verbs:

...the word **break** can be appropriately used only with an object that is 'rigid' in some of its dimensions, and it expresses the appearance of some discontinuity therein. (But why one can break a thread but not a cloth is not easily

covered by this statement)
and

...what exactly is meant by **hit** in the sense of the kind of surface contact asserted by **hit** in particular (as opposed to **strike**, etc.), is extremely difficult to pin down.

It may be this very difficulty which renders formalization impossible and perhaps, undesirable.

P. Matthews (1979, pp.30-31) points out that:

There are at least two forms of creativity at work in ordinary speech. One is the creativity that is governed by rules. If there is a noun wug there is a plural wugs...The other is governed by tendencies, by patterns of analogy. If we can talk of the 'core' of an apple then maybe we can talk of the 'core' of a carrot or a cabbage. (But we don't usually)...

The underlying question is why we do not usually use **core** for **carrot** and the present researcher argues that the reason stems from the "grammar" of each of these words. There are certain constraints in our use of these words which are essential in order that the words can be applicable at all.

Palermo's "two-horned dilemma" (1983) may explain why formalization is difficult. He argues that we have to account for both stability and variability in explaining the development of word meaning. In its own way, the "grammar" of words is concerned with both variability, that is, the alteration in sense of a word in different contexts; and stability, that is, the constraints imposed in the language which allow a particular word to be used with certain other words in the language only.

2.2 Linguistic and psycholinguistic approaches to word meaning

In this section, philosophical approaches to word meaning are referred to only where they add to the present argument. Linguistic and psycholinguistic approaches are dealt with in greater depth.

Lyons (1977) points out that it is customary to recognize three areas within the field of semiotics, namely, syntax, semantics and pragmatics. In the early 1970's the trend in psycholinguistic

research moved from syntax to semantics. In the late 1970's, the emphasis altered to that of pragmatics.

Numerous researchers have studied semantics, that is, the content of the speech act (Curtiss, Prutting and Lowell, 1979), particularly at the one-and-two-word stages (for example, Bloom, 1970; Clark, 1973; Greenfield and Smith, 1976; Slobin, 1970). Fillmore's case grammar (1968) was regarded by many researchers (for example, Bowerman, 1973; Brown, 1973; Ingram, 1971) as useful for describing language development. An attempt was made to establish the semantic notions underlying two-word utterances.

Pragmatics, the communicative intent or function of the speech act (Curtiss, Prutting and Lowell, *ibid*) has been defined as "...the use of language in context" (Bates, 1976a, pp.1-2). It has been studied by Fillmore (1968); Antinucci and Parisi (1973); Dore (1974, 1975); Halliday (1975), Bates (1976a, 1976b) and Bates and Johnston (1977) amongst others, and it draws on linguistic, cognitive and social rules. Pragmatics includes cognition whereas semantics and cognition were regarded as separate entities and an attempt was made to relate the two. It has been argued that many words have more than one function (Karmiloff-Smith, 1979a). However, psycholinguists have not taken into account the child's knowledge of the way in which the senses of a word alter according to the linguistic context in which it occurs.

Semantic and pragmatic aspects of language are so tightly interwoven in development as to seem almost inseparable (Blank, Gessner and Esposito, 1979; Cook-Gumperz, 1977; Curtiss, Prutting and Lowell, *ibid*; Leonard, 1976). However, disparate semantic and pragmatic skills have been isolated in children with language difficulties (Blank, Gessner and Esposito, *ibid*.; Skarakis and Prutting, 1977).

The semantic approaches were concerned with the functions of words as action, agent, instrument. This tells us about the role that the word plays and consequently how to begin understanding the child's intention but it does not enlighten us as to the word's meaning itself. The pragmatic approaches were concerned with interpersonal communication and studied "how children learn to use language, to

exploit the special realm between content and use" rather than how children acquire the meanings of words (Bates, 1976a, p.2).

A pragmatically-oriented approach to the study of language was first proposed by philosophers, such as Austin (1962), Grice (1968) and Searle (1969). They emphasized that meaning can be viewed independently of the context in which it is uttered as well as in relation to this context (the theory of speech acts). The 'meaning-is-use' or speech act theories assert that "the meaning of an expression is determined by, if not identical with, its use in the language" (Lyons 1981, p.31). These theories emphasize speaker-listener communication. This focus differs from that of the present study, where the effect of one word on another as part of the word's meaning, that is within the language is of interest.

Carey's review of the field of semantic development (1982) indicates that a great deal of research has focused on how children acquire the meanings of words. Most studies to date on the development of word meaning have been concerned with concrete or what is termed "substantive" words (for example, Bowerman, 1978a; Clark, 1973, 1974; Greenberg and Kuczaj, 1982; Nelson, 1974, 1977). These words are easier to investigate because they refer to objects, that is, to something which is tangible and visible. They are acquired earlier and, since most theorists have been concerned with studying the acquisition process, they have tended to evaluate these earlier-acquired words.

The semantic feature theories of Clark (ibid) and Nelson (ibid), as an example, can say very little about the development of abstract words and, in fact, they do not claim to be able to explain this development. In this sense alone, these theories are limited since they fail to explain general word meaning (Greenberg and Kuczaj, ibid). Most of these approaches are built upon a referential theory of word meaning (Carey, ibid) and would be unable to describe the development of words such as **pain** and **thought**. They also fail to explain the "grammar" of words and where implied, they do not adequately account for it in development.

The numerous studies conducted to evaluate non-ostensive word meaning are not being ignored. However, they are subject to major criticisms as Carey (ibid, p.351) points out:

In the early seventies, dozens of papers were published supporting the compositional view of semantic development...

Studies were carried out in the domains of

...comparative adjectives (**big, little, tall, short**), temporal conjunctions (**before, after**), spatial prepositions (**in, on, under**), kinship terms, pronouns **front, back**, deictic verbs (**come, go, bring, take**), **more, less**, adverbs of time (**seldom, always, never**), verbs of possession and transfer (**buy, sell, trade**), animal names, colour terms, and time-axis verbs (**grow, shrink, raise, lower**).

The component-by-component view of semantic development depends critically upon the central tenet of the classical view of word meaning - namely, that complex concepts can be defined in terms of primitives. The classical view has been vociferously attacked by philosophers, and psychologists have recently joined the chorus.

Studies have also been carried out on factive and non-factive verbs but have been analysed from one vantage point only (that is, their factive quality) and have not been taken into account in theories of word meaning development to date. Szagun's research on moral words (namely, **courageous** and **feel sorry** (1983) approached that of the present study but drew on a limited set of contexts in analysing each word and did not take account of the "grammar" of words in the explanation of her findings. Others such as Keil and Carroll (1980) and Brugman (1984 cited by Dirven, 1985) analysed their findings in light of an abstract image built up in the mind which is subject to numerous criticisms (see section 2.2.2).

More recently, figurative language is receiving a great deal of attention in psycholinguistic research (for example, Ackerman, 1984; Kelly and Keil, 1984; Vosniadou, 1984; Windmueller, Gardner and Winner, 1984). However, we are still far from having a suitable theory of literal word meaning development.

2.2.1 "Grammar" in contrast to feature theories

As has been discussed, the "grammar" of a word is its variety of senses and the unique relationships it forms with other words in different contexts. This varied use of a word is its meaning. "Grammar" has no equivalent term in traditional linguistics.

The "grammar" of words differs from semantic analyses to date. Lyons (1977, p.317) points out that :

...the majority of structural semanticists subscribe nowadays to some version or other of componential analysis. This approach to the description of the meaning of words and phrases rests upon the thesis that the sense of every lexeme can be analysed in terms of a set of more general sense-components (or semantic features), some or all of which will be common to several different lexemes in the vocabulary.

In componential analysis, the meaning of a word is regarded as a complex of semantic features or markers connected by logical constants (Bierwisch, 1970). The word is taken out of context for analysis. A lexicon contains a list of words in the language together with a specification of the syntactic category to which the word belongs (Radford, 1981). Lexical entries include syntactic, phonological, morphological and semantic information. In the present study, only semantic information that is, the meaning of words, is being discussed although the importance of other types of information is not denied.

A lexicon is built up from a syntactic base: the semantic component specifies "...what those sentences generated by the syntax actually mean" (Radford, *ibid*, p.362). As an example, for the word *it*, the semantic component will specify what can and cannot be an antecedent of *it*. The "grammar" of words, on the other hand, is not a syntactic component: rather, the word can be used in specific ways in the language because of its "grammar" and its syntactic possibilities are determined by its "grammar" rather than the reverse. If the "grammar" of words was viewed as part of the lexical information, then the lexicon would be very rich.

There are different approaches concerning the semantic information that should be included in the lexicon. Radford (*ibid*) mentions the following :

i) Sememes such as kill which would take features <cause to die>. This has been criticized as simply providing an "unsophisticated kind of paraphrase" (Radford, *ibid*, p.138).

ii) Functional structure (Bresnan, 1978) which distinguishes, for example, rely (which is an intransitive verb and ^{takes} a prepositional phrase) from rely on (which forms a single semantic unit). This differs from "grammar" in that same and pain are not one semantic unit. However, it does suggest that our consideration of word meaning must take account of its different uses.

iii) Thematic relations (for example, Fillmore, 1968; Gruber, 1965; and Jackendoff, 1972) concern roles such as agent, goal and so on. Part of the "grammar" of a word is that it can be used in particular semantic roles only.

iv) Selectional restrictions (Being most pertinent to this study, these are discussed in depth (see section 2.2.2)).

2.2.1(a) Developmental studies

Psycholinguistic approaches to the study of word meaning are based upon certain "generally accepted" assumptions (Keil and Carroll, 1980, p.21) namely, that word meanings can be decomposed into lists of features; that semantic development consists of the addition and/or subtraction of such features to a set that is paired with a single lexical item; and that the features are psychologically real and can be used to predict children's errors in word use. A number of controversies still remain, for example, whether features are mostly added or subtracted; whether the first features to be acquired are mostly perceptual or functional; and whether features defining polarity are acquired first or last (Keil and Carroll, *ibid*).

Work on extension in children's word meaning development has revealed overextensions (Barrett, 1978; Bloom, 1973; Brown, 1958; Clark, 1973, 1979), underextensions (Anglin, 1977; Barrett, 1983; Nelson, Rescorla, Gruendel and Benedict, 1978; Reich, 1976; White, 1982) and overlap (for example, Clark and Clark, 1977) in children's use of words. The extension of a term is "...the class of the things to which it is correctly applied...we can define a class on the basis of some

property (or set of properties) which they have in common" (Lyons, 1977, p.158).

With overextension, the child's word includes the object (Anglin, 1983). For example, Piaget (1951) reported that the child uses "bow wow" for dogs as well as for moving objects seen from a distance. Underextension is apparent when the child's word is a subset of adult extension of the word. With overlap, both the child and the adult denote some of the same things by the word but also denote some different things (Anglin, 1983). Cases of overextension seem to suggest that the child's word meanings are defined by more general properties than those of adults (Clark, 1973) whereas examples of underextension suggest that they are more specific than those of adults (Reich, 1976). Cases of overlap suggest neither of the above but, rather, that the child's meanings are different from those of adults (Anglin, *ibid*).

There is controversy regarding the high incidence of overextension in early vocabularies, the basis for overextensions, and the character of overextension as a conceptual process (Rescorla, 1980). In addition, consensus has not been reached as to the types of overextensions which children demonstrate. Perceptual similarity of nonreferents to referents of the word has been shown to yield greater overextensions than referents that are not perceptually similar (Clark, 1973; Kay and Anglin, 1982; Thomson and Chapman, 1977). However functional similarity has also been found to be important in overextension (Bloom, 1973; Barrett, 1978; Gruendel, 1977; Nelson et al, 1978; Rescorla, 1980; Werner and Kaplan, 1963) and other less important factors such as association through contiguity also play a role. Furthermore, controversy exists as to whether words are less overextended in comprehension (Clark, 1978b, 1979; Fremgen and Fay, 1980; Gruendel, 1977; Rescorla, 1980; Thomson and Chapman, 1977) or in production (Anglin, 1983; Kay and Anglin, 1982).

Bowerman concludes that :

...an adequate theory of the acquisition of word meaning has to be flexible enough to account for the child's ability, even from a very early age, to classify experiences on the basis of very different kinds of similarities. Theories built around one basic class of similarities, whether perceptual or functional,

are too restricted to account for the rich diversity of ways in which children can recognize constancies from one situation to the next (1978a, pp.268-269)

Howe and Hillman (1973) found that the acquisition of semantic restrictions for verbs continues into the elementary school years but the specific character of these restrictions was difficult to specify. McNeill (1970) suggested that one can explain word meaning by means of horizontal development when a word enters the child's vocabulary but without all its markers. As language develops, new markers are added to large groups of words already present but inadequately marked. This approach was supported by Brown, Cazden and Bellugi (1969) and Bloom (1970) but not clearly supported by Howe and Hillman (ibid). Vertical development, on the other hand, suggests that when a word is acquired, most semantic markers accompany it, but that such entries are relatively isolated. As an example, a verb requiring an animate subject may be present for one verb but not for another. From the point of view of the "grammar" of words, horizontal development would have better explanatory value but both these approaches are limited by the restrictions that a marker theory imposes.

Rescorla (ibid) argues that normal extension and overextension are two aspects of the same process. If this is the case, then overextension may elucidate the process of language learning in older children. These numerous studies on over- and underextension have not taken into account the specific contexts in which the child applies each word and the extent to which he is subconsciously aware of how words alter their senses in different contexts. The child may overextend and underextend because he has a restricted view of the word's meaning but the contexts in which overextension occurs will elucidate his view.

The present researcher suggests that "grammar" errors may occur because children underextend or overextend the senses of a word to other words in the language. An example of underextension is the comment by Ursula cited in introducing chapter 2 when she asks about pain, "Where will it go?" She uses the word go in such a way as to take no account of its specific sense in relation to the word pain. Go away can be applied to animate objects but not to words denoting non-ostensive entities. An example of overextension would be "I'll

strangle your hand" which was mentioned in chapter 1. Here, **strangle** is applied to a word with which it is not usually used. The child has ignored the constraints which the word **strangle** imposes on its use in the language.

Feature theories are subject to numerous additional criticisms, a few of which are listed below:

i) It is difficult to specify which features are essential in defining a concept (Greenberg and Kuczaj, 1982).

ii) It is difficult to determine the number of features that would adequately define a concept (Greenberg and Kuczaj, *ibid*, p.278) "particularly in specifying what is meant by the notion of defining feature".

iii) The theories fail to explain how children are able to sort out the essential from the accidental properties (Miller, 1978).

iv) One cannot determine features that are criterial for (for example) **dog** which would "accurately distinguish dogs from non-dogs without, at the same time, classifying some dogs as non-dogs" (Greenberg and Kuczaj, *ibid*, p.279). All feature theories are problematic since

most concepts (meanings) cannot be adequately (accurately) defined by a list of features, no matter how exhaustive the list...for most concepts, it is difficult (impossible) to provide a list of features that would permit one to include only appropriate instances as members of the class but at the same time exclude all inappropriate instances as nonmembers of the class... (Greenberg and Kuczaj, *ibid*, p.285).

v) These theories are not fully supported by experimental data in both children and adults, that is, their explanatory value in relation to child data is limited (Barrett, 1982; Greenberg and Kuczaj, *ibid*).

vi) These theories fail to explain the "systematic subdivision of semantic fields" (Barrett, *ibid*), for example, the child may use the word **dog** when talking about all animals. When he learns the word **horse**, his use of the word **dog** becomes more restricted and approaches

standard adult usage to a greater extent. This occurred with some of the children in Carey's 'Chromium study' (1978).

Clark (1983) compares the acquisition and growth of a vocabulary to the construction of a dictionary. She argues that conventional meanings which contrast with the meanings already available are continually added. Merriman (1984) discusses the way in which a new word in the child's lexicon results in his correcting the meaning (that is, reducing the overextension) of other words already in his repertoire. He draws on Clark's proposal made in her original feature theory and emphasized in her recent lexical contrast theory (1983). Merriman (ibid) found that children between the ages of 2¹/₂ and 6 years are disposed towards lexical contrast. This disposition emerges and increases during the preschool years although it is not present at the commencement of word learning. He emphasizes the importance of taking lexical contrast into account in any theory of lexical development.

vii) These theories, because they involve features, seem to "predict strict, definite concept boundaries, whereas many natural concepts appear to have vague, fuzzy boundaries" (Greenberg and Kuczaj, ibid, P.288).

viii) These theories fail to explain or to take account of the "grammar" of words.

ix) These theories accept that the child has a prelinguistic concept to which he then attaches a word as a label (Bowerman, 1978a; Clark., 1974; Nelson, 1974).

x) Clark's and Nelson's theories entail some form of analytic process in concept development in children which runs counter to the studies on concept formation in adults: the analytic process is regarded as more complex and it is argued that this follows holistic concept formation. Children first experience objects as unanalysed wholes. Weaknesses of the analytic approach to semantic development have been detailed by Nelson (1974), Anglin (1977) and Palermo (1978a, 1978b) amongst others and are not elaborated upon here.

xiv) The feature theory approaches fail to account for all types of words. Bowerman (ibid) points out that words for non-object concepts

cannot be accounted for by means of a theory of perceptual similarity and Nelson, similarly, fails to explain how words for actions and relations are acquired. In addition, both theories cannot account for words which reflect the child's own subjective experiences or reactions (for example, such words as aha). Bolinger (1965, pp.566-567), in a critical evaluation of the Katz-Fodor theory (1963) of semantic markers, proposes that:

A complete semantic theory must not only map the markers of all senses but show how markers are added and subtracted to alter the senses of words. One corroboration of a marker theory would be its ability to predict semantic shifts... In a marker theory, which compels us to make all-or-none decisions, this is a dilemma. Markers are atoms. They do not have ranges...

If the "grammar" of words has psychological reality, then the limits of a feature theory will be clearly exposed.

2.2.2 Co-occurrence constraints and the "grammar" of words

Conceptual meaning "is widely assumed to be the central factor in linguistic communication and...it can be shown to be integral to the essential functioning of language in a way that other types of meaning are not (which is not to say that conceptual meaning is always the most important element of an act of linguistic communication)...conceptual meaning has a complex and sophisticated organization... (Leech, 1974, pp.10-11)

Conceptual meaning deals with differences in sense(s) of a word, and most closely approximates the term "grammar". Leech (ibid, pp.26-27) states that conceptual meaning or sense ('meaning' in its narrower use) refers to logical, cognitive or denotative content. He uses the term 'communicative value' for meaning in the wider sense. This embraces that which is communicated "by virtue of what language refers to" (connotative); what is communicated of the social circumstances of language use (stylistic); of the feelings and attitudes of the speaker (affective); communication through association with another sense of the same expression (reflected); or with words which tend to occur in the environment of another word (collocational) (Leech, ibid, p.26) The different types of meaning vary in the extent of their

contribution to communication. Leech (ibid, p.13) argues that "one can scarcely define language" without referring to conceptual meaning.

The two principles of contrastiveness and constituent structure represent the way language is organized in terms of paradigmatic (or selectional) and syntagmatic (or combinatory) aspects of linguistic structure. Contrastiveness can be explained in terms of features, for example, the meaning of the word *woman* could be specified as +HUMAN, -MALE, +ADULT, as distinct from *boy*, which could be 'defined' +HUMAN, +MALE, -ADULT. The principle of constituent structure is that by which larger linguistic units are built up out of smaller units, that is, the syntactic constituents of a sentence.

Conceptual meaning is not to be confused with language analysis according to truth conditions. Rather, conceptual meaning is concerned with factual truth. A violation of conceptual meaning is illustrated in the following sentences:

- * 'There is a tree growing in the middle of the ocean'
- * 'Dogs have horns'

These sentences are "perfectly interpretable, but not true of our world of experience" (Lanham, 1985). Another example which cannot be regarded as "perfectly interpretable", is

- * 'I have swallowed my pain'

This is not possible conceptually because what we swallow has to be concrete. This sentence may also be explained by drawing on selectional restrictions, for example, what we swallow has to be <+concrete> and *pain* has the feature <-concrete>. However, conceptual meaning and selectional restrictions are distinguishable one from the other. As an example, *ship* may be regarded as animate in certain sentences (for example, in poetry) but this would be prohibited in terms of our factual knowledge of the world.

The "grammar" of words deals specifically with conceptual meaning. In this study, it is aimed to investigate the meaning of the word by analyzing the way in which the word alters its senses according to the context in which it occurs and by determining whether children of different ages reveal developmental differences when required to reflect upon words in a variety of co-occurrence relations. The meaning a word introduces constraints in terms of the words with which it can co-occur. However, the meaning also stems, in part, from these

other words with which the word can co-occur. The word shifts in meaning in these different co-occurrence relations. As an example, the word *same* in the phrase *same ball* may be interpreted (by virtue of the external world) as suggesting that there is either one or there are two balls and size and/or colour may be focused upon in deciding whether the two balls are the same or not. On the other hand, the word *same* in the phrase *same pain* can only be interpreted as suggesting that there are two pains (when two people are present). For *same pain*, the place in which the pain is located or the type of pain may be the factors determining whether the pains are to be regarded as the same or not. The word *same* alters its sense in each of these contexts.

The present researcher aims to investigate those aspects of the word which are focused upon when that word co-occurs with other words and the way in which children of different ages direct their attention to different aspects of the word in drawing their conclusions. It is suggested that aspects of conceptual meaning be expressed as what may be called 'propositional attributes', that is, statements about the meaning of the word. As an example, part of the meaning of *pain* is that it is internal and cannot be pointed to. This is not encompassed by a feature and cannot be explained by means of co-occurrence relations. If the child knows what pain is, he can make a proposition about it.

Co-occurrence relations discussed by researchers such as Katz (1972), Leech (1974) and Lehrer (1974) amongst others, differ from the emphasis of the present study. Lanham (ibid) proposes that it is only within a framework of constraints that we can establish any specifiable set of meanings for words. If there are no constraints, then there is no limit to the range of endless new meanings we can ascribe to a word. Apart from conceptual meaning, there are three categories of co-occurrence constraints on the use of words (Leech, 1974), namely:

- i) collocational restrictions
- ii) stylistic constraints
- iii) selectional restrictions

i) Collocational restrictions: Collocational meaning "consists of the associations a word acquires on account of the meanings of the words which tend to occur in its environment" (Leech, *ibid*, p.20). Leech (*ibid*) provides as an example, the words **pretty** and **handsome**. Both these words can occur with different other words but certain of their uses overlap. Collocational meaning is an "idiosyncratic property of individual words" (Leech, *ibid*, p.20). Leech (*ibid*) argues that we need to invoke this category of collocational meaning only when an explanation in terms of the other categories of meaning does not apply.

Collocational meaning is a tendency to co-occurrence. Part of the dictionary entry of words might be an aspect of their collocational meaning, for example, **antenuptial**, by virtue of its legal use, would tend to occur with the word **contract**. Collocational meaning is not categoric but indicates probabilities in the co-occurrence of words. A second example is 'prodigious effort' which is highly probable. **Prodigious** seems to require a word which is physical, for example, 'a prodigious thought process' violates the collocative constraint. It is possible that physical is not part of the conceptual meaning of **prodigious** but is an influence from the word **effort** with which it has a high probability of co-occurring.

Lyons (1981, p.91) points out that the sense of any lexeme includes two kinds of relations, namely, substitutional and combinatorial. Substitutional sense relations hold between "inter-substitutable members of the same category", for example, **bachelor** and **spinster**; whereas combinatorial relations hold most commonly between expressions of different categories, for example, between nouns and adjectives (**unmarried** and **man**) and between verbs and adverbs. The congruity of sense of the adjective with the sense of the noun makes them collocationally acceptable: they can occur together in the same construction. Furthermore, synonyms do not have the same collocational range. (This was suggested in the discussion on fuzzy boundaries for words such as **pain** and **ache**, section 2.1.7). As an example, **strong** and **powerful** collocate with **argument** but they do not share the same set of collocations: we can talk of "a powerful car" but not of "powerful tea" and of "strong tea" but not of "a strong car" (Lehrer, *ibid*).

Collocational meaning is one of several types of associative meaning (Leech, 1974): words take on a shade of meaning in association with other words but collocational meaning is not part of its sense. Collocation does not take into account the way in which the sense of a word alters when used with another word, for example, **feel** in **feel the dog** versus **feel the pain**. The words **dog** and **pain** throw light on the meaning of the word **feel** in these two instances. Collocation is therefore, more restricted in its application than "grammar".

The freedom that lexemes have for combining with other lexemes varies markedly from one to another. For example, in English, certain verbs or adjectives (such as **good**) can collocate with numerous nouns whereas others, such as **rancid**, are more restricted in terms of their collocational range (Lyons, 1977). A native speaker will be able to apply most lexemes in appropriate co-occurrence relations, even in those contexts which he has not previously encountered. Lyons (1977) cautions against our arguing, at one extreme, that the meanings of a lexeme determine its collocations and, at the other extreme, that we can define the meaning of a lexeme as its set of collocations. Collocations are independent of meaning: they lie within the language system and are often not logical (Lanham, *ibid*).

ii) Stylistic constraints: Stylistic and affective meaning "...have to do with the situation in which an utterance takes place" (Leech, *ibid*, p.16). Stylistic meaning is concerned with the social circumstances surrounding the use of language, for example, the social relations between the speaker and the listener may require either a formal or a colloquial use of English. Affective meaning concerns the way in which language reflects the personal feelings and attitudes of the speaker which is "conveyed through the conceptual or connotative content of the words used" (Leech, *ibid*, p.18). Leech (*ibid*, p.17) points out that synonymy is restricted to conceptual meaning. Therefore, we have no true synonymy because words seldom have both the same conceptual meaning and the same stylistic meaning.

An example of a violation of stylistic meaning is the sentence 'He mounted his gee gee' in which **mount** is formal and **gee gee** colloquial. A second example is 'tummy ache' which is acceptable whereas 'tummy pain' is not. **Tummy** is stylistically informal and **ache** may be used informally as well.

iii) Selectional restrictions: These deal with

...the general principle that meaning seems to 'overflow sideways' from one part of a sentence to another: that certain features of meaning are predictable from environment, and that any contradiction of such features will result in an unacceptable utterance (Leech, *ibid*, p.41).

A violation of selectional restrictions is best explained by means of a constraint on a feature (for example, a noun is the subject of a verb) which also explains many metaphorical uses of language.

Selectional restrictions refer to the set of contexts in which an expression can occur (Lyons, 1981). They reduce the number of interpretations which can be assigned to lexically composite expressions. Only those meanings are selected which are compatible with the context in which the lexeme occurs (Lyons, 1977). This is established according to the sense components of the lexemes. Words seldom occur in isolation and there are restrictions on the co-occurrence of words (Lehrer, 1974). Lehrer (*ibid*, p.175) adds that "...any adequate grammar must eventually handle connected discourse".

The notion of selectional restrictions was used by Katz and Fodor (1963) and Katz and Postal (1964) to explain semantic unacceptability. They drew on semantic features but attempted to accommodate them to a Chomskian grammar. Together with projection rules, selectional restrictions allow for certain interpretations of phrases and sentences as semantically acceptable while preventing semantically anomalous interpretations. The semantic component of language "interprets underlying phrase markers in terms of meaning" (Katz, 1972, p.32). The semantic component comprises a dictionary, that is, "a list of the meanings of the morphemes of the language" and projection rules, that is, "...a set of rules that reconstruct the speaker's ability to project sentence meanings from morpheme meanings" (Katz, *ibid*, p.36). Projection rules provide information on which constituents can co-occur in higher units (Lehrer, 1974).

Katz (*ibid*, p.33) explains that in the dictionary, senses of every "syntactically atomic constituent in the language" are formally specified:

...Each reading in the dictionary entry for a lexical item must contain a selection restriction, that is, a formally expressed necessary and sufficient condition for that reading to combine with others. Thus, the selection restriction attached to a reading determines the combinations with the readings of other lexical items into which that reading can enter when a projection rule is applied. (Katz and Postal, 1964, p.15).

Katz and Fodor (ibid) described selectional restrictions in terms of which semantic features (rather than lexical items) could co-occur.

Selectional restrictions state

...the condition under which the sense represented by the set of semantic markers can combine with other senses to form a sense of a syntactic complex constituent... The selection restriction reconstructs the distinction between the range of senses with which a given sense can unite to form a new sense and the range of senses with which it cannot unite. Whenever a constituent is formed from component constituents and the sense of one belongs to the range of senses excluded from combination with the sense of the other, then the constituent is meaningless (conceptually absurd) unless the component constituents have other senses that can combine (Katz, ibid, p.43).

Each grammatical construction into which an item can enter is stated by means of a selectional restriction, for example, each verb will have selectional restrictions for subject, direct object, indirect object, and so on (Lehrer, ibid).

Howe and Hillman (1973, p.132) describe the selectional restrictions (of verbs, for example) as "contextual features restricting the semantic properties of nouns that can be logical subjects and objects of these verbs". These restraints may occur at a more abstract level, for example, semantic markers (Katz and Fodor, ibid) such as <+ concrete> or at a more idiosyncratic level, for example, semantic distinguishers (Katz and Fodor, ibid). Distinguishers are "those features of the semantic description of a word which are idiosyncratic to that word" whereas markers are "those features which enter into semantic generalizations, features in terms of which semantic judgements on sentences...can be formalized and made explicit" (Fillmore, 1970, p.131). Examples of distinguishers are: for sitting

upon, with legs, with a back (for the word **chair**) and of markers, <-concrete> and <-animate>. Katz and Fodor did not specify this distinction clearly and their position has been challenged by many theorists including Bolinger (1965) and Weinreich (1966). An example of a semantic distinguisher is **sting** which will have a semantic marker requiring a noun marked <+insect>. However, this would not preclude butterflies from stinging (Howe and Hillman, *ibid*).

According to Katz (*ibid*), semantic markers represent the conceptual constituents of senses, that is, the simplest and the most complex concepts of a sense, equivalent to phrase markers representing the syntactic construction of sentences. Other examples of selectional restrictions are **kill** which must take an animate object (Radford, *ibid*) and **antenuptial** which must occur with **contract** (Leech, *ibid* regards the latter as a collocational constraint). Radford (*ibid*, p.139) states that the issue is over-simplified since **kill** can occur with inanimate objects when used figuratively, as in 'Crowd disturbances are killing the sport'. An example of selectional restrictions for the word **handsome** is provided by Katz (*ibid*, p.44):

handsome [+Adj]: (Physical)(Object)(Beautiful)
(Dignified in appearance), <(Human Artifact)>
(Gracious), (Generous) <(Conduct)>
(Moderately Large) <(Amount)>

Another example is the sense of **hard** meaning 'not easily penetrated' which can combine with the sense of **chair** if the semantic marker (physical) appears in the reading of **chair** in an underlying phrase marker (Katz, *ibid*, p.46).

Katz (*ibid*, p.36) uses the term 'sense' "in its customary usage", namely, for one of the different meanings which a lexical item or expression may have. The term 'meaning' is applied to the set of senses which a lexical item or expression has:

a dictionary entry will contain a semantic representation for each sense of its lexical item, and the semantic representation of the meaning of a lexical item will be taken to be the set of semantic representations of its senses.

A representation of a sense must formally indicate its differences and similarities to other senses (Katz, *ibid*).

The Katz-Fodor-Postal approach has been criticized. Lehrer argues (ibid) that these theorists devote little attention to the details of selectional restrictions. Furthermore, because the examples drawn on to explain the theory are "obvious and uncomplicated...the difficulty of discovering, characterizing, and devising an adequate formalism is obscured" (Lehrer, ibid, p.177). As an example, if the word *smell* is marked by means of a redundancy rule as applying to physical objects, this would then suggest that *smell* cannot be applied to *stale air* or to *smoke* or that the latter are physical objects. As Lehrer (ibid, p.181) states:

It is clear that in many cases there are paradigmatic contrasts involved in words so that differences of selection restrictions can be predicted on the basis of meaning. And one could always devise some features that would account for the rest of the cases...

Lehrer (ibid) concludes that most of the features that have been listed as syntactic by Chomsky and others, are really semantic features. Chomsky (1965) attempted to deal with selection restrictions in terms of the co-occurrence of syntactic classes (for example, the word *admires* requires an animate object). Leech (ibid, p.142) argues that selectional restrictions must be treated as semantic. He criticizes Chomsky's (ibid) approach as an attempt to introduce a semantic phenomenon into the realm of syntax and he argues that this framework makes no room for acceptable sentences. Chomsky's approach (ibid) requires that a verb match positively the features of subject and object rather than allowing co-occurrence unless there is a conflict of features.

Fillmore (1970, p.131) argues that for change-of-state verbs such as *break*, *bend* and *fold*,

...selectional information can be as idiosyncratic as the kinds of properties that have been referred to as semantic distinguishers ...it looks very much as if for a considerable portion of the vocabulary of a language, the conditions determining the appropriate use of a word involve statements about properties of real world objects rather than statements about the semantic features of words

Katz and Fodor (ibid) and Katz and Postal (ibid) have formulated their approach within the framework of compositional analysis with syntax as primary:

...any constituent's meaning is a compositional function of the meanings of its parts and thus, ultimately, its morphemes (Katz, ibid, p.35).

Syntactic organization plays a necessary role in determining the meaning of complex constituents (Katz, ibid, p.36).

Leech (ibid, p.143) regards the Katz - Fodor theory (1963) as "a more comprehensive account", although still subject to the same defect as Chomsky's (ibid) approach.

Weinreich (1966) introduced a 'transfer feature' to overcome this, that is, a feature is transferred from one word to the accompanying word. Selectional restrictions are violated only where two features contrast within the same constituent. However, meanings were still described by drawing on syntactic elements (such as words and sentences). Leech (ibid, p.143) suggests rather, that semantic units (such as predicates and arguments) should be drawn on. In the latter case, only a dependency rule is required which connects features in adjacent clusters. He explains that a specific feature would be required in an argument if another given feature occurs in the predicate of the same predication. If there is a clash of contrasting features in the same cluster, then it results in a violation of selectional restrictions as in 'The water cooked the dinner' (Leech ibid, p.141).

The present approach, that of the "grammar" of words, is not formulated within a syntactic framework although it is not intended to undermine the role of syntax in language development. Different terms were employed by the present researcher so as to move away from the syntactic framework of selectional restrictions used by Katz and Fodor, amongst others. Furthermore, the term "grammar" includes not only the way in which the word is used in a variety of contexts and any selectional constraints which operate in the use of the word in these contexts but also, the entire meaning of the word itself which stems from all its senses. The senses are not pooled to create a common core. Rather, the meaning is the diversity of senses of the word.

The present study does not aim to offer a theory but rather, to present developmental findings regarding primary school children's ability to reflect upon word meaning where words are used in different co-occurrence relations. The entire basis of this research differs in orientation from that of Katz and Fodor (ibid) and others who have emphasized the notion of selectional restrictions.

Lyons (1977) points out that both specialization and generalization play a part in language acquisition. Developmental studies (for example, Clark, 1973, 1974) have revealed that the development of word meaning occurs by means of specialization from a broader to a narrower sense. The present researcher accepts these findings. However, it is important that these are viewed within the framework of the "grammar" of words.

Errors involving selectional restrictions may be differentiated from errors in conceptual meaning. The sentence 'The idea murdered his grandmother' demonstrates a conceptual error or semantic anomaly. Lyons (1981, p.117) describes semantic anomaly as "everything that falls within the scope of the pre-theoretical notion of not making sense", that is, such expressions have no propositional content at all. Such 'categorical incongruity' describes expressions which are meaningless and cannot be interpreted by making minor adjustments about our world. Contrarily, when selectional restrictions are violated, the expression can be satisfactorily interpreted but we have to make adjustments to our assumptions about the nature of the world, for example, 'Colourless green ideas' (Lyons, 1981); 'The man is falling upside down' (Katz ibid). Categorical incongruity is closely related to syntactic unacceptability. As an example, it is inherent in the meaning of *exist* that it cannot take an object, as in: 'My friend existed a whole new village' (Lyons, 1981) Another example is: 'The hail is falling upside down' (Katz, ibid). In many cases, a clear distinction between semantic anomaly and violation of selectional restrictions is not possible and different theoretical standpoints may result in different interpretations of a single expression.

Errors of "grammar" most closely approximate errors of conceptual meaning but cannot be viewed within a feature theory framework. Examples of "grammar" errors are:

i) 'I have a pain in my head but I can't feel it' where an essential characteristic of pain, namely that one feels (experiences) it, is removed. This example reveals a semantic anomaly or a contradiction because pain must be perceived which implies the ability to feel.

ii) 'He gave me a pain and now he wants it back again': part of the meaning of pain is that it cannot be transferred from one person to another.

iii) 'The stone had a dream': part of the meaning of dream is that it can only be experienced by animate subjects. This example seems to draw on the feature <+ animate> and is equivalent to a violation of selectional restrictions. The present researcher phrases 'experience by animate subjects' not as a feature but rather, as part of the meaning ("grammar") of the word pain.

From all the examples above, it is argued that "grammar" errors encompass a broader set of examples which include what have generally been regarded as a violation of co-occurrence restrictions (without drawing on a feature theory or syntactic framework as the basis).

The three types of co-occurrence relations indicate probabilities in co-occurrences. In the present study, these co-occurrence relations are seen as contributing to the meaning of the word thereby adding to our understanding of the "grammar" of the word but they are not a substitute for the term "grammar". As an example, the phrase 'My pain told me' violates meaning at the level of selection restrictions because the word **told** requires an animate subject and **pain** has the feature <-animate>. From the framework of the "grammar" of words, this phrase would be explained, similarly, as a violation of "grammar" because pain cannot take on animate qualities. However, in correct productions, selection restrictions do not have as their purpose to explain a word's meaning. Rather, they attempt to explain why words can or cannot co-occur. In so doing, they suggest that the meaning of the word, already established, disallows its co-occurrence with certain other words. They do not go on to argue that the meaning of the word stems largely from these co-occurrence relations as is the focus of the term "grammar" of words. The purpose of "grammar" is to explain a word's meaning by looking at how other words affect or

contribute to, its meaning. Co-occurrence relations are important in the present study because they are seen as contributing in a crucial way to the word's meaning. However, it is also argued that a large part of the meaning stems from these co-occurrence relations.

The focus is on the meaning of the word, for example, in the following contexts



same alters its meaning : **ball**, **dress**, **pain** and **leaf** all contribute in different ways, to the meaning of **same**. Selection restrictions do not explain these types of differences: **same** can occur with each of these nouns so no selectional constraint is violated. Furthermore, selectional restrictions are not concerned with the way(s) in which **ball**, **dress**, **pain** and **leaf** contribute to the meaning of **same**.

The "grammar" of a word is the meaning of the word as it is influenced by both the intralinguistic context (other words) and the extralinguistic context in which it occurs. Part of the meaning of the word is revealed by analyzing why certain words can be used together whereas others cannot. It is implicit in the present approach that any apparent 'core' meaning of the word encompasses only a part of the word's meaning. Focusing on a 'core' meaning takes the word out of context whereas the co-occurrence relations which are regarded as crucial in contributing to the word's meaning, necessarily place the word within a context. The "grammar" of words draws on the three constraints mentioned by Leech (ibid) in arriving at its meaning. However, it is concerned mainly with conceptual meaning and these three constraints form part of the process of the present analysis rather than comprising its end-goal.

Selectional restrictions assume that the meaning of the word is already 'there', (that is, one can isolate the features which together constitute its meaning) and therefore, the word **pain** (as an example) cannot occur as the subject of the sentence with the word **told**. The "grammar" of words stems from a very different premiss, namely, that

the meaning of the word is only partially isolable since it stems largely from the other words with which it co-occurs.

Within the framework of the "grammar" of words, if a sentence is meaningless then it is "ungrammatical". In Chomsky's early model, a sentence could be syntactically acceptable and, at the same time, meaningless. Sentences such as, 'Can Mary find John's dog?' and 'Can Mary find John's pain?' reveal the striking differences in the "grammar" of the words **dog** and **pain**. We cannot look for John's pain in the same way as we look for John's dog. The "grammar" of the word **pain** disallows for the sentence 'Can Mary find John's pain?' to be asked in everyday language. All English speakers would regard this sentence as unacceptable, and thereby, display the same intuitions about language (whether due to training, to biological factors, or to an interaction of these factors). Contrarily, a sentence such as 'I'm in ache', although syntactically incorrect, is not meaningless at the level of "grammar".

Despite difficulties with formalization, Lyons (1977, pp.267-268) points out that:

field theory has proved its worth as a general guide for research in descriptive semantics over the last forty years; and it has undoubtedly increased our understanding of the way the lexemes of a language are interrelated in sense. The fact that it has not been, and perhaps cannot be, formalized would be a more damaging criticism, if there were available some alternative theory of the structure of vocabulary which had been formalized and which had been tested against an equal amount of empirical evidence, and this is not yet the case.

This issue of formalization has been discussed in relation to the "grammar" of words (section 2.1.8).

2.2.3 Prototype approaches

One day Morris the Moose saw a cow...
He said, "You're a funny-looking moose!"
The cow said, "I'm a COW. I'm no MOOSE!"
"You have four legs and a tail and things on your head. YOU'RE A MOOSE!"
"But I say MOO!"
Morris said, "I can say MOO too!"
The cow said, "I give MILK to people.
MOOSE DON'T DO THAT!!!"
"So, YOU'RE A MOOSE WHO GIVES MILK TO PEOPLE!!!"

The cow said, "My MOTHER is a cow!"
"She must be a MOOSE, because YOU'RE A
MOOSE!" (Morris the Moose, B. Wiseman, 1973).

Barry: 3¹/₂ years (language-impaired)
"What's that?"
"A table leg".
"It can't be a leg 'cos it can't walk"

The first quote above illustrates the prototype emphasis when considering word meaning. Interest is in category membership, the difficulties we find in delimiting category boundaries even though we are readily able to ascertain what is prototypical of a category or not. The prototype approaches deal with substantive word meaning and with categorization in concept development. Carey (1982, p.348) points out that, within the classical view, conceptualization is closely related to categorization.

The second quote is included to illustrate the emphasis in the present study: it is not concerned with category membership as for the prototype approaches but rather with our use of words in different linguistic contexts. Here leg occurs in the context of table rather than in the context of a person or animal. The example of a 'table leg' does not include a non-ostensive word but the present approach is equally clear in relation to words which denote entities in the external world.

The feature theories differ from the earlier theories of word meaning posited by Werner (1948), Vygotsky (1962) and Brown (1965). Contrary to those theories which argue that "...all referents are characterized by one or more common features" (Bowerman, 1978a), the latter theories proposed that the child does not associate a word with a single feature or set of features but shifts from one feature to another in his uses of a particular word. This was termed "complexive" usage.

In her prototype approach, Rosch (1973a, 1973b, 1975a, 1975b, 1975c, 1978; Rosch and Mervis, 1975; Rosch, Mervis, Gray, Johnson and Boyes-Braem, 1976) proposed firstly, that a category (for example, 'CHAIR') is not defined by a precise set of features but rather by attributes, none of which is decisive. Examples of attributes are: having four legs, a back, a seat, to be sat on, and so on. An object which possesses most of the important attributes is a 'prototype' of the category. Rosch (ibid) found that the objects which are

prototypical can be rapidly categorized by adults. Second, she argued that natural categories have fuzzy borders.

Both these factors (above) move clearly away from the feature theory approaches to word meaning. Rosch (ibid) argued that it is the prototype which enables us to decide whether something should be called a chair or not and that if we imagine a chair, it will be the prototype that we imagine. Third, she concluded that most everyday concepts are arranged hierarchically with the basic level of categorization ('CHAIR') conveying the greatest amount of information (in contrast to 'FURNITURE' or 'KITCHEN CHAIR'). These basic-level concepts are learned much earlier than superordinate and subordinate terms (Rosch et al, 1976)

Bates and MacWhinney (1982, p.210) summarize the basic tenets of the prototype approach. These are included and elaborated upon in the discussion which follows, with emphasis upon those aspects most pertinent to the present study:

i) Central tendency: There is a central tendency or prototypical member of a category: it has most features in common with members of its own set and least features in common with members of other sets. A prototype is described as a "set of variations around a central instance" (Bowerman, 1978a, p. 278). Whereas the feature theories argued for an analytic approach, that is, concepts are analyzed into features initially, the prototype approach suggests that concepts are holistic initially and that analysis occurs at a later stage. The latter is supported by studies in both children and adults.

Certain theorists have argued for one prototype (for example, Bowerman, ibid; Rosch and Mervis ibid); others for a set of prototypical exemplars (Carey, 1978; Keil and Carroll, 1980). Extension of the word to novel referents is dependent upon the degree of similarity between the referent and the members of the exemplar field. Keil and Carroll (ibid) proposed (based on Carey, ibid) that the meaning of a word may be different for different objects or on different occasions of usage. Certain elements of the meaning may be shared on all these occasions (for example, the word tall would never apply to colour properties), but within the domain (for example, of

comparative spatial adjectives), the meaning of the word may vary considerably from object to object.

Carey's (ibid) 'missing-feature-plus-haphazard -example-theory' argued that the child may first learn object- particular meanings which are idiosyncratic and later, a more general concept that applies to all objects. Keil and Carroll (ibid) studied the word tall (a move away from the more common study of object nouns) and they suggested that this word is initially represented by a range of exemplars from which an "abstract concept" later emerges. They explain (ibid, p. 22) that

...the child may learn what a tall man is and what that particular usage means, but may not have a general, abstract concept of 'tall' that can be used systematically and consistently with a wider class of objects. The meaning of a modifier may be completely embedded in the objects with which it has been learned...

This view was supported by their experimental data since children were found to use a word correctly for some classes and incorrectly for others. Oden (1977, p.203) explains that an approach which favours categories that have multiple prototypes does not make "...the strongly non-intuitive prediction that modifying a perfect table to make it more similar to a chair (for example, by adding a back and padding) should make it an even better exemplar of furniture...". A single prototype approach suggests this. Multiple prototypes, on the other hand, suggest that one can have separate "chair-furniture and table-furniture prototypes".

Rosch et al argued (ibid) that the most prototypical members of categories have most attributes in common with other members of the category and least attributes in common with other categories.

ii) Goodness of membership is determined by the degree to which features overlap with the prototype (Bates and MacWhinney, ibid).

iii) Heterogeneous membership implies that two items may overlap with the prototype but not with each other (Bates and MacWhinney, ibid).

iv) Some features of the prototype are more heavily weighted than others. Weightings may be static across contexts or dynamic, shifting from one context to another. Bates and MacWhinney (ibid) point out

that this is compatible with Rosch's position though not proposed by Rosch.

v) The prototype approach (Bowerman, *ibid*) explains overextension as being linked by a "family resemblance" rather than by criterial features.

The notion of criterial features implies that within a particular category, all members possessing a simple set of criterial features or attributes, have a full and equal membership within that category. Rosch and Mervis (1975) extended the notion of prototypical referents by considering the distribution of attributes within a category. Rosch and Mervis (*ibid*) argued that in defining categories, Wittgenstein's (1953) concept of "family resemblances" affords an alternative to the concept of 'criterial features'. As Carey points out (1982, p.352):

Wittgenstein (1953) denied the possibility of definitions for many complex concepts. He argued that in many cases there simply are no necessary and sufficient conditions for category membership. His spelled-out-example was game - the claim being that there are no properties in common to all games that are necessary and sufficient for something to be a game. Wittgenstein likened the structure of such a concept to that of relations among members of a family...

"Family resemblance" is used in a way which differs from "features". For example, games such as ball games, board games, competitive games, games in groups and games alone all bear a family resemblance to one another, yet they also differ from one another in many ways. If we look at how we use the word game, we can see how diversely we have applied it. Rosch and Mervis (*ibid*) argued for a prototype approach in which certain members of a category are more prototypical of that category than are other members. They then applied the notion of "family resemblances" by arguing that within the category, the most prototypical members are those with most attributes in common with other members of the category. Not all members have equal membership.

In the present study, the term 'family resemblance' is extended to the co-occurrence of non-ostensive words with other words in the language, for example, there is a "family resemblance" between different uses of

same in an utterance including same ball versus same pain. These two uses of same bear a resemblance to each other rather than being identical in sense. "Family resemblances" refer to the relationships that hold between the senses of a word as applied in different contexts. The term "family resemblance" is not applied to the perceptual resemblances which the term denotes for Rosch and Mervis (ibid).

iv. Word meaning as an image in the mind

The ideational theory of word meaning suggests that a linguistic expression attains a certain meaning through its being used regularly in communication as the 'mark' of a specific idea. The idea exists independently of language (Alston, 1964, p. 23) and the words express a complete thought. 'Idea' means sensation or mental image.

This theory is limited in the following way:

What are we supposed to look for by way of an idea of 'when'? How can we tell whether we have it in mind or not? Just what am I supposed to try for when I try to call it up out of context? The real difficulty is that we are unable to spot 'ideas' as we would have to in order to test the ideational theory (Alston, ibid, p.24).

The ideational theory fails even for words which could plausibly be connected with a mental image, for example, dog or stone. The mental image will not be the same on each occasion on which the word is used in the same sense and differences in mental imagery will not reflect in differences in what one is saying (Alston, ibid). Wittgenstein (1953, pt.73) discusses the absurdity of regarding the association between a word and an image in ones mind as part of the words' meaning:

... if I am shewn various different leaves and told " This is called a 'leaf'", I get an idea of the shape of a leaf, a picture of it in my mind. - But what does the picture of a leaf look like when it does not shew us any particular shape, but 'what is common to all shapes of leaf?' Which shade is the 'sample in my mind' of the colour green - the sample of what is common to all shades of green? ...Ask yourself: what shape must the sample of the colour green be? Should it be rectangular? Or would it then be the sample of a green rectangle? - So should it be 'irregular'

in shape? And what is to prevent us then from regarding it - that is, from using it - only as a sample of irregularity of shape?

Alston (ibid, pt. 25) confirms that...we do not look for ideas in the minds of the speakers and listeners in order to settle questions about what a word means in the language..."

An apple may be prototypical of the category 'fruit' but this does not imply that, when we utter the word fruit we necessarily build up a picture of an apple in our minds. We may think of an apple when we hear the word fruit, but this need not occur: the image is not part of the meaning of the word, it is incidental to the meaning. Meaning is rather, social and communal. The present approach is not incompatible with that of the prototype approaches.

It is not being suggested here that the idea of a mental image does not exist. Certainly, we use the word's mental image, and we may say that something is "before my mind's eye", but it is argued that a mental image is not an essential part of a word's meaning as some researchers have suggested. Certain proponents of a prototype approach (for example, Dirven, 1985; Keil and Carroll, ibid; Rosch, ibid) argue that a mental image is built up in the mind. This may be true of categories such as 'FRUIT' in which an image of an apple is built up but this is certainly not essential to our understanding and using of the word fruit.

vii) Fuzziness and fuzzy boundaries in prototype theory. Peripheral members of a set are fuzzy (or ill-defined), sharing more features with other sets and they alter with the user's needs, whereas the prototype is easier to define (Bates and MacWhinney, ibid).

The term 'fuzzy boundaries' has been applied to perceptual aspects pertaining to category membership (as in prototype approaches). These approaches are concerned with the inclusion of a particular basic concept, such as 'WHALE' within a superordinate category such as 'FISH'. They have not been concerned with the "grammar" of words as is the emphasis in the present study.

In anthropology (for example, Goodenough, 1956; Schneider, 1969) and in linguistics (for example Andersen, 1975; Labov, 1973) researchers

have attempted to describe categories which are by their very nature not discrete.

1) Prior to this, category membership was considered to be an all-or-none relationship (Oden, 1977).

2) In one study, Labov (ibid) aimed to determine the fuzzy boundaries of word meanings. He requested his subjects to imagine cup-like containers in specific contexts and to name them. He found that certain items were considered to be clearly prototypical with others on the boundary, depending on the context. Zadeh (1965, 1975) developed logical models for dealing with "fuzzy" information which provided the shift to regarding class-membership as "fuzzy".

Other psychologists (for example, Rips, Shoben and Smith, 1973; Rosch, 1973b, 1975a,b) attempted to devise hierarchies of prototypicality for inclusion of members within a particular category. They also found that the subjective degree of class membership affects other cognitive processes such as semantic memory (Oden, ibid). In fuzzy set theory, many items may be neither clear members nor clear non-members and some exemplars may be members in certain contexts but not in others (Palermo, 1982). Oden (ibid. p. 198) gives the example of a bathtub which is "sort of" furniture but adds that "... it is certainly not as correct to say that a bathtub is furniture as it is to say that a table is furniture".

In the present study, the term 'fuzzy boundaries' is applied differently to take account of the characteristics of non-ostensive words. No attempt is being made to devise a hierarchy of prototypicality for inclusion of characteristics such as duration, degree of discomfort, for when we use the word *pain* rather than *ache*. These factors are taken into account in the present tasks but it is not perceptual factors that differentiate these two words. Nevertheless, these previous studies on fuzzy sets contribute to the present approach.

Andersen (ibid) proposes that the linguist writing a lexicon for a certain language, take fuzzy boundaries (which she equates with 'vagueness') into account. Furthermore, she argues that the psychologist is required to explain how children learn to make

distinctions between two lexical items which are inherently fuzzy and to determine at what stage during the developmental process this occurs. Rosch (ibid) demonstrated that people are adept at rating the degree of membership of objects within a particular category. Consistency, both between subjects and within a subject on different occasions led her to conclude that people experience no difficulty thinking in fuzzy terms.

Oden (ibid) investigated subjects' reasoning when presented with fuzzy information such as, "Which is more of a bird: an eagle or a pelican?" and "How much more of a bird is an eagle than a pelican?". Oden's findings (ibid) supported those of Rosch (ibid) that humans are competent at processing fuzzy information and that they display stable, consistent ratings in this regard. Degree of membership in a category was considered to be most important. As was mentioned, Rosch (ibid) suggested that for each category there is a prototype and that the extent to which the item is similar to the prototype, determines its degree of membership in the category. This view is supported by numerous researchers (for example Brown, 1978; Greenberg and Kuczaj, 1982; Neisser, 1984).

As was mentioned earlier, Clark (1973) did not take into account the issue of fuzzy boundaries when explicating her theory of semantic development. However, she was concerned with early language acquisition and Andersen (ibid) suggests that this fuzziness may be learned at a relatively late developmental stage. Andersen (ibid) aimed to investigate how children (aged 3-12 years) learned that boundaries are vague (or fuzzy). She used as her means the domains of cups and glasses, but, unlike Labov (1973) she did not place her items in a context.

Andersen (ibid) describes three stages in the acquisition and development of these terms. Initially, children have a limited vocabulary and limited 'real world knowledge' and they were found to overextend the category 'CUP'. Children then focused on perceptual properties which led to overly discrete categories being formed. At this stage, new semantically-related terms were acquired. Subsequently, with an increasing awareness of functional properties, the vagueness of the boundaries between cups and glasses increased. The oldest children were the "vaguest". Andersen (ibid) concluded,

contrarily to the present view (see section 2.4.2e), that their definitions, as a result, more closely approximated dictionary entries. As an example,

...a cup was defined as something which will 'hold stuff'; 'cup shaped, sometimes has a handle - sometimes it can be a mug'; or it is a 'curved shaped object for drinking out of, with a hole in the top - to hold in your hand'. This was opposed to a glass which is 'taller, longer - kind of like a cup but higher', and 'a container for holding something to drink', 'usually clear, deep, and round' (Andersen, *ibid*, p.97).

This stage, comparable to adult usage, involved "an inter-play of form and culturally defined function" with increasing emphasis on the cultural aspects (Andersen, *ibid*, pp. 97-98). Andersen argues that culture-specific characteristics, learned through one's experience in one's own culture, may be important since the functions served by an object may vary markedly across societies. These functions would then come to the child's attention later than would perceptual attributes. By the age of 12, the child starts to draw on "cultural-functional criteria" in making decisions about category membership. At this stage, he is not so dependent on certain criterial features, which allows for "vaguer (fuzzier) and hence more realistic boundaries" (Andersen, *ibid*, p.99).

Children of all age groups were noted to learn the central members of a category prior to their learning the peripheral members. This complies with the findings of Rosch (*ibid*) and Bates and MacWhinney (1982) that items closer to the central prototype are learned earlier than those on the periphery, closer to the vague boundaries. Andersen (*ibid*) suggested that Clark's semantic feature framework (1973), if modified to include the notion of vague boundaries, may explain how the child builds up an ideal and acquires the knowledge for identifying 'clear cases' and later, 'not-so-clear' ones. However, as was discussed earlier (section 2.2.2a), Clark's theory is subject to other criticisms in addition to not taking fuzzy boundaries into account. It is suggested that an entirely new framework may be required in order to account for this.

Andersen's findings are particularly pertinent to the present study. The child's increasing awareness of fuzziness may be equally

applicable to the non-ostensive words being investigated. Oden (ibid, p. 204) concludes that:

...the human competency for processing fuzzy information can be expected to permeate virtually every cognitive process that uses semantic information.

It will be recalled (from section 2.1.6.) that the term 'fuzzy boundaries' is applied in the present study to the overlap in the uses of non-ostensive words rather than to perceptual differences which account for category membership. However, a developmental progression for an awareness of fuzziness may be found equally in the present approach and, if so, it would have important implications for the development of the "grammar" of words.

2.2.3(a) Prototype approaches applied to child language

It must be emphasized once again that prototype theory has not been applied to the meanings of non-ostensive words nor to primary school children. Rosch's theory (1973a, 1973b, 1975a, 1975b) provided a basis for a suitable developmental theory, as shown in the work of Mulford (1977) and Greenberg and Kuczaj (1982) amongst others.

In her research with children, Bowerman (1978a) found support for neither a feature theory nor a complexive usage approach. She found (p. 273) that where complexive usage did occur, it was in the form of associative complexes, that is, "...successive instances of the concept do not necessarily share anything with each other but all share at least one feature with a central or 'nuclear' instance..." (a prototype). Contrarily, a chain complex (Vygotsky, 1962) suggests that the child extends a word to novel referents on the basis of attributes "... shared by two or more consecutive items but not by all the items...there is no stable attribute nor set of recurrent attributes associated with the concept "(Bowerman, ibid, p.271). As an example, item A shares the attribute of shape with item B and item C shares the attribute of colour with item B but not with item A. In a chain complex, the original sample or the sample to which the child is most commonly exposed, has no central significance.

Bowerman (ibid) found non-complexive use for words applied to both objects and non-objects in the early stages with complexive use

occurring more with actions than with objects. Complexive use occurred after the stage of one - word utterances and beyond. This would pertain to children in the primary school period, of interest in the present study.

The prototype approach (Bowerman, *ibid*), in contrast to the feature theories, suggests that "exemplars of a concept differ in their status as exemplars " (Greenberg and Kuczaj, *ibid*). Bowerman (*ibid*) proposed that children hear particular words modelled most frequently in connection with one referent or with a small group of highly similar referents. Later, they produce these words in connection with these prototypical referents only, that is, they underextend. Still later, they extend these words to novel referents that share one or more attributes with these prototypes. Every referent will have one or more attributes in common with the prototype but they need not all possess the same conjunctive set of attributes as the prototype (Bowerman, *ibid*, Rosch and Mervis, 1975).

Bowerman (*ibid*) found support for the findings of Rosch and Mervis (*ibid*) where applied to children. In complexive word usage, she found a group of referents that has one or more attributes in common with every other referent. In the child's novel extensions, the attributes associated with the word clustered maximally. Rosch and Mervis (*ibid*) reported that the child's categories are built around prototypes that are the first exemplars in his experience and only later do these categories shift to best exemplars. Information learned about prototypes generalizes with little difficulty to peripheral instances of use though the reverse is not the case.

Bates and MacWhinney (*ibid*) point out that the prototype theory allows for continuity in explaining child and adult categorization abilities. Thomson and Chapman (1977) found that children judge certain items to be better exemplars of a particular category similar to findings for adults. Mulford (1977), based on Rosch, Simpson and Miller (1976) adds that the process is simplified since many concepts are structured around correlated sets of attributes rather than single attributes. As an example, feathers and wings are correlated attributes for the concept 'BIRD', that is, the presence of one assumes the presence of the other.

Bowerman's experimental data (ibid) and that of Barrett (1978) support the explanation of a family resemblance approach. However Barrett (1982) argues that the prototype approach fails to account for the systematic developments that occur within semantic fields.

Greenberg and Kuczaj (ibid) have proposed a theory of substantive word meaning acquisition. They favour a prototype approach based on that of Rosch et al (ibid). They argue that basic object concepts are learned holistically by children and adults whereas superordinate categories are learned analytically. Both perceptual and functional information is more important initially. They regard prototypes as mental representations of instances experienced early and/or frequently. This differs from the present approach.

There are other approaches to word meaning arguing for a chain-type complex instead of a central prototype (based on Vygotsky, ibid); variations on the approaches detailed above (for example, Anglin, 1978); as well as approaches which have attempted to overcome the limitations of the feature theories (for example, Barrett's Contrastive Hypothesis, 1982; Greenberg and Kuczaj's theory, ibid). These are not detailed since they do not add to the present argument and they fail to account for the "grammar" of words. None provides an adequate theory of non-ostensive word meaning.

A few researchers to date have touched upon the "grammar" of words. Kuczaj (1982b, p.40) discusses what he terms "semantic representations" which include information both about the meanings of individual words and about the relation of these meanings to those of other words. He presents as an example, the phrase **hard dream** which is "peculiar at best", whereas **hard book** and **hard rock** are permissible, although the meaning of **hard** differs in each of the latter two phrases. However, Kuczaj (ibid) has not attempted to investigate this in children nor has he taken it into account in his theory of language development (Greenberg and Kuczaj, ibid).

In a recent unpublished doctoral study reported on by Dirven (1985), Brugman (1984) investigated the word **over** and isolated ninety different uses of this word in a variety of contexts. This accords with the present approach. Brugman (ibid) presented different spatial representations for the use of the word **over** and interpreted the

findings in spatial or visual terms. She suggested a "spatial grammar", emphasizing the mental image as a part of the word's meaning. The limitations of this interpretation have been discussed (see section 2.2.2 vi).

2.3 The Development of word meaning

Development is concerned with changes that occur in behaviour with increasing age. Wohlwill (1973, p.240) states that :

...behavioural development does not take place in isolated packages or along neatly separated, independent tracks, but along a variety of fronts in close interaction with one another.

Feldman (1980, pp 6-7) points out that most developmental viewpoints are characterized by four basic assumptions, namely, those of universal achievement, spontaneous acquisition, invariant sequence, and transition rules. Briefly, universal achievement assumes that "there are certain advances in thought which all children will achieve" under varied conditions (Feldman, *ibid*; p.6). From a developmental perspective, those aspects of thought which are unique to us as individuals have not been emphasized. It is assumed that universals are acquired spontaneously, that is; all children pass through all the stages of development without specific intervention (Feldman, *ibid*).

The individual passes through certain invariant sequences on his way to attaining the highest skills. Transition rules govern the progression from stage to stage in which earlier steps are incorporated into larger stages in the sequence. The one stage is transformed into the next stage rather than being lost in the process. (A traditional maturationist approach would regard each stage as discrete with nothing common between the two stages).

Developmental psychology has concentrated on understanding behaviour changes that occur without specific environmental intervention. Piaget has argued that intervention in the process suggests that it is no longer development (Miller, 1979) but rather, learning. The extralinguistic contribution to language learning has featured predominantly in developmental psychology research over and above an attempt to establish universals (Macdonald, 1978). Nevertheless, most

behaviourist psychologists accept some degree of innateness and most rationalists acknowledge that environmental factors cannot be ignored.

In psychology, there are two opposing views of development: the organismic approach (for example, Bruner, 1966; Piaget, 1950, 1967, 1969; Werner, 1948) and the approach adopted by the social learning theorists (for example, Bandura and Walters, 1963). Both cognitive and learning theory approaches advocate the building of knowledge upon that which already exists within the child's repertoire (Prutting, 1979). They draw on different processes in explaining developmental change. The former approach emphasizes the concept of stages and the qualitative changes that occur from one stage to the next, with both biological and environmental factors coming into play. The latter approach rejects the concept of stages and emphasizes a quantitative progression with experience and reinforcement, that is, environmental factors, being important in the process of development. In accordance with the learning theory approaches, the psychometric viewpoints of Gibson and Gibson (1955) and Olson (1970), both of which reject the notion of stages, favour a linear explanation of the developmental progression.

In the present study, development beyond the acquisition period is of major interest. The early stages of acquisition have been discussed (Section 2.2.2) since later development builds upon earlier acquired language abilities. The present chapter includes a discussion of learning and experience, innateness, and the stage concept as it applies to word meaning. The nature-nurture issue cannot be disregarded even at the later stages of development.

2.3.1 Learning and experience

This section includes a discussion of the role of ostensive definition in language learning, the role of context in language learning and "language games".

2.3.1(a) The role of ostensive definition in language learning

"You know, I think the Gulliver story is meant to be a joke", suggested Fiona. "The writer of the story was probably making fun of the idea that words take the place of the things they name. I think he wanted us to see that words are not just substitutes for things" (G. Matthews, 1984, p.69).

Denis (6,1 years): "Early and late aren't things. They're not like tables and chairs and cups - things you can model!" (G. Matthews, 1980, p.14).

The referential theory of word meaning states that "the meaning of an expression is what it refers to" (Lyons, 1981, p.30). This theory is questioned in the present study. It relates to the importance of ostensive definition in language learning, the latter view being based upon the assumption that a word 'stands for' an object.

Alston (1964) points out that when we say what a word means, we are using another expression which we "claim" has "approximately the same use" as the word we aim to explain. Alston (ibid, p.22) therefore, prefers to phrase the theory in response to the question "What is it for two expressions to have the same use?". This gives rise to answers, such as: "...two expressions have the same use if and only if they refer to the same object..." The referential theory can be shown to be inadequate as a theory of meaning simply by acknowledging that two expressions can have different meanings but the same referent (Alston, ibid). Referring is only one of the functions that linguistic expressions perform, for example, to what do conjunctions refer?

Carey (1982, p.347) states that:

Young children learn most of their vocabulary from hearing new words in the course of normal conversation and from ostensive definitions. Assuming a representational theory of mind, in both cases the child's mental representation of the linguistic context in which the new word is heard and his mental representation of the nonlinguistic context are his bases for testing hypotheses about the word's meaning. (...assume...that when a person knows the meaning of a word, he has a mental representation of the meaning)². Most psychologists, certainly all cognitive psychologists, would take this characterization of word learning as self-evident; it constitutes the framework within which theories of semantic development are set. This framework is not a theory of semantic development, because (inter alia) it lacks constraints on the kinds of hypotheses entertained by the child.

² (The bracketed portion above is a cross-reference made by Carey in her notes at the end of her article).

Added to this are problems associated with ostensive definition as fully explaining word learning, detailed below.

To define a word ostensively "is to get someone to realize what the word means by pointing to an example of that to which it refers", or to direct the person's attention to the object to which it refers while the word is being uttered (Alston, *ibid*, p.65). However, the explanatory value of ostensive definition in language learning has been shown to be restricted and furthermore, it has been argued that learning of word denotation occurs simultaneously over a number of words. Lyons (*ibid*) states that children do not first learn the full extension of a word such as red "without knowing anything of the extension of brown or pink". The child may overextend a word, such as **dog** to include all animals. His full extension of the word **dog** will only occur once he has acquired the extension of words such as **horse**.

A major criticism of ostensive definition as explaining language learning is that it "can never specify what it is that a sign refers to in the complex welter of properties that any object necessarily displays" (Bruner, 1975, p.68). For example, if you point to a chair and say "chair", how does the child know that you mean "chair" to refer to the object as a whole, that is, the four-legged, backed, seat-containing object. At another time, you may point in the same way to the same chair, and say "seat" or "brown". Wittgenstein (1953, pt.28) argues that "...an ostensive definition can be variously interpreted in every case".

One could present the counter-argument that the child will 'assume' that the word refers to the object as a whole and, only subsequently, will he learn colours, parts of the object, and so on. Ninio has shown this to be the case in the first two years of life (Ninio and Bruner, 1978; Ninio, 1980). Ostensive definitions are disambiguated by "the rule of the complete object", that is, a name applied ostensively to a picture is generally taken as referring to the depicted object as a whole rather than to parts of the object (Ninio, *ibid*, p.572). She found on a sample of forty mothers and children that mothers make allowance for misunderstandings when they want to name parts of objects. Either they name the part immediately after naming the whole object, or they refer to the whole within the

definition of the part, or both. In this regard, Ninio (ibid, p.565) argues that:

...unless ostensive definitions are used consistently on one level of reference, which is moreover known to the listener, they are useless as a didactic device.

The findings above still do not explain how ostensive definition enables one to differentiate colour from a part of the object.

What does 'pointing to the shape', 'pointing to the colour' consist in? Point to a piece of paper. And now point to its shape - now to its colour...(Wittgenstein, ibid, pt.33).

Lyons (ibid) indicates that it is much easier to enable someone to see what we are pointing to if we use other expressions that are related to the word we are defining. For example, 'That is a dog - not a cat' draws attention to specific characteristics which distinguish dogs from cats. Lyons (ibid) adds other major criticisms :

...the person for whom an expression is being defined ostensively must understand the meaning of the demonstrative pronoun 'that' (or its equivalent in other languages) in the proposition "That is (an) X", or alternatively of the gesture that serves the same purpose. He must also realize what more general purpose is being served by the utterance or gesture in question...Finally, he must...either know in advance or infer the intention (defining property) of the class that is being exemplified.

Whitehurst, Kedesdy and White (1982, p.399) argue that Bruner's comments against ostensive definition (1975) warrant "some rebuttal". They suggest that Bruner criticizes ostensive definition and then arrives at the following question:

What must the child know before he or she can learn from ostensive definition and how does he or she come to do it? (ibid, p.400).

Whitehurst et al (ibid) appear to have undermined the strength of Bruner's criticism of ostensive definition. Bruner (ibid) endeavours to explain language learning without recourse to ostensive definition

as an essential part of the learning process. Bruner (ibid, p.68) asserts that:

...we would do well to avoid falling into the classical empiricist trap of the theory of naming or referring...and look instead at the procedures earliest used by the infant and adult in indicating and differentiating the very limited set of objects with which they traffic.

To explain language learning, Bruner (ibid) focuses on those behaviours that occur in mother-child interactions that is, indicating, deixis and naming, and on how these behaviours explain early reference. His use of terminology is important since he avoids the term 'ostensive definition'. He emphasizes the early use of words for 'ritualized games' between mother and infant and argues that these games offer an essential link between the word and its referent, thereby initiating the lexical acquisition process..

Whitehurst et al (ibid) conclude, correctly, that accepting that there are preconditions does not invalidate the processes which govern subsequent learning. However, they have misconstrued Bruner's position (ibid) and fail to indicate where they think Bruner's criticism of ostensive definition breaks down.

Whitehurst et al's study (ibid) did illustrate, however, that ostensive definition and observation play a role in the development of naming both for object words (for example, Gleitman, Gleitman and Shipley, 1972; Lenneberg, 1967) and for action words (for example, Bloom, 1973). However, Bruner's position offers an explanation which neither depends upon nor denies that ostensive definition plays a role.

Watson and Olson (in press) propose that children generally acquire early words implicitly rather than by explicit means such as ostensive definition. In the latter case, the extralinguistic context is most important. They argue (ibid, p.21) that the "sheer volume of words that are learned by young children eliminates consideration of explicit introduction as a major vehicle in early language acquisition". It has been assumed in much linguistic research to date that the child learns a concept to which a name is subsequently

attached in the form of a label. This would suggest that ostensive definition is important in language learning.

The learning of non-ostensive words, as their name suggests, is not readily explained by means of ostensive definition. However, we cannot rule out ostensive definition entirely, rather its role in the learning of non-ostensive words is not primary. As an example, when considering the word **pain**, we can point to the pain behaviour or to a surface manifestation of the pain but we cannot point to the pain itself. The extent to which ostensive definition comes into play will vary for each word, for example, for the word **chair**, we can point to the chair itself although our pointing to the object and our pointing to the colour could be confused. In order to include the word **chair** in meaningful sentences we rely on learning processes other than that of ostensive definition. For the word **same**, we can only point to similarities between two concrete objects.

In the present study, the term 'non-ostensive' is applied to words, the denotation of which cannot be pointed to; words that would be regarded, traditionally, as 'abstract'. Examples of such words being assessed are **pain**, **same** and **pretend**. Ostensive definition may seem to be more applicable to words denoting 'concrete' objects than to words denoting 'abstract' entities. Although a child may learn the word **table**, in part, by means of ostensive definition, his ability to apply this word in different contexts draws on processes other than that of ostensive definition as does his ability to extend the word to other tables of varying forms and sizes. On the other hand, the concrete-abstract distinction may merely mislead us into suspecting that a different process of word-learning may be operative.

In our Western orientation, separation of the 'concrete' from the 'abstract' imposes an arbitrary 'boundary' which helps us to organise our world. This distinction may then alter the way in which we perceive our environment. Cultural differences also play a part, for example, traditional Zulu people view what Westerners would regard as 'abstract', such as ancestors, as tangible. There may not be a 'real' difference between 'abstract' and 'concrete' terms or concepts beyond this surface imposition.

The properties that differentiate concrete from abstract entities are difficult to isolate. Concrete objects can be manipulated but, it is arguable whether pain (an abstract entity) cannot be 'manipulated' for example, by a chiropractor. (The sense of the word **manipulate** alters in each example). Concrete objects cannot be contrasted with abstract entities in terms of the property 'alienable': we can 'lend a book but not a pain' but within the category 'concrete', certain entities are inalienable and unable to be separated from the body, such as hair and eyes, although they are still concrete. Pain, as an example, is not inalienable, but it functions in the same way.

We are compelled to look beyond ostensive definition for an explanation of the development of words such as pain. The present approach makes no claims as to whether the demarcation in terms of 'concrete' and 'abstract' is real and, if so, whether words demarcating entities in these two categories are learned differently or by means of a single process. We cannot see pain, we cannot point to it (at best we could point to a bruise or cut on the surface of the skin or to the place on ones body); we could point to the person crying but not to the pain itself; we cannot even be certain that the sensation is the same from one occasion of use of the word to the next. However, we are led to believe that this sensation is like an object, that is, an 'object' inside ourselves. We would then assume that we could point to pain, that it is tangible, that it has a shape, and so on, which is erroneous. Because pain has a physical reality we become confused, but what about a word like **thought** which has no physical reality?

2.3.1(b) The role of context in language learning

The concepts of learning and experience draw on the child's interaction with his environment. Mother and infant interact within a communication situation from about 12 weeks (Lewis and Cherry, 1977). Performance factors such as memory span and attention lapses, perceptual and motor limitations (Katz, 1974), and pragmatic and socio-cultural factors (Bouveresse, 1974) come into play. (These factors are not detailed in the present study).

It is generally accepted that an analysis of children's early language involves primarily an interpretation of the utterance's context rather than of the utterance itself (Turner and Herriman, 1984). The

importance of context in relation to language behaviour and language research has been emphasized by numerous investigators (for example, Bates 1976a; Kuczaj, 1982b) since Bloom's (1970, 1973) first breakthrough in this regard.

The present approach is framed within a psycholinguistic orientation. It draws on language in context as most important in contrast to a formal linguistic perspective (for example, that of Chomsky, 1965), where language is investigated removed from context. Inspired by Wittgenstein (ibid), the present researcher argues that language is used to operate in the world: that a word or sentence must be part of a language in order to attain meaning, otherwise, it would be merely noise. Chomsky (ibid) was concerned with an analysis of competence and in his approach, context would constitute a performance variable.

Kuczaj (ibid) differentiates external context from internal context. 'External context' refers to the situation in which a child encounters a term (Greenberg and Kuczaj, 1982) that is, the nonlinguistic context (Bloom, ibid). The 'internal context' is a factor of the child's predispositions and past experiences which influence his interpretation of the external context (Kuczaj, ibid). The internal context emphasizes the active role which the child plays in the interpretation process which then interacts with experience in determining development. Kuczaj (ibid) emphasizes that this activity on the part of the child must be taken into account in theories of cognitive development (Piaget, 1929). The separation between internal and external context enables us to explain why different people interpret the same event differently or why one person may interpret similar events differently on different occasions.

In the present study, the term 'context' is used more broadly to encompass:

i) Those "parts which precede or follow a passage and fix its meaning" (Concise Oxford Dictionary, 1976).

ii) Words in the sentence and in the language as a whole to which a particular word relates.

iii) The common background which is shared and presumed by the speaker and the listener, that is, social conventions which constrain

the individual (Lyons, 1981), knowledge of the immediate situation and interactions that have occurred up to that time (Tunmer and Herriman, *ibid*) as well as the entire range of human experience.

The term 'linguistic context' is reserved for (i) and (ii) above and 'extralinguistic context' for (iii) above. The term 'out of context' as used in this study, is applied relatively since it is argued that a word always occurs in a linguistic context. However, language is not totally determined by its context since then it would carry no information (Lyons, 1977).

2.3.1(c) "Language games" and Language Learning

It was emphasized that language always occurs in context, both in a linguistic context and in an extralinguistic context. Researchers have drawn attention to the importance of dialogue in language acquisition (for example, Bruner, 1975; Charney, 1980). Nelson (1978) argues that the child initially represents events, that is, interactions with others, rather than objects. She calls these representations "social scripts". However, few researchers to date have drawn on Wittgenstein's notion of "language games". As an example, Snyder, Bates and Bretherton (1980) used this idea in relation to children in the first two years of life and talked of the "naming game".

In the present study, the term "language game" is used to refer to the different discourse types in which words may be used, for example, giving and following orders, telling jokes, greeting, cursing, and so on (see Wittgenstein, *ibid*, pt.23). It is important to take account of

the "language game" in which a word is used, when analysing a child's language. The "language game" delineates the range of linguistic and extralinguistic contexts in which the word is used and accordingly, the sense that it will adopt in that particular context (that is, the "grammar" of the word). The use of "language games" is particularly clear when applied to non-ostensive words since there is no exemplar which can be isolated as the child's initial example in learning. Rather, an entire situation or "language game" serves as the initial learning experience from which the child may generalize the use of the word to other "language games" either spontaneously or with additional teaching.

Whereas speech acts deal with effects on communication, that is, effects on the listener, the present use of the term "language games" applies to the development of word meaning. This occurs in a communicative context, but the emphasis is on word meaning rather than on listener effects. The entire situation contributes to the child's learning of a particular word, for example, factors leading up to a situation and consequences of the situation are important: use of the word pain differs in the contexts 'be in pain' and 'pretend to be in pain' because the consequences of the behavioural sequences are different.

"Grammar" suggests that for any particular word, a variety of "language games" is required for learning to take place. In the present study, 'linguistic context' refers to same in same pain, and same ball and "language game" refers to same pain in 'I'm pretending to have the same pain as you' and 'my pain is the same as yours'. A word occurs in a particular linguistic context over a diversity of "language games". It is suggested that the meaning of the word stems not only from its immediate co-occurrence relations in utterances but also from broader discourse. Coherence constraints in discourse are not formalized but they assist the child in learning the meanings of words.

2.3.2 Innateness and the development of word meaning

A "...principle is innate if it does not come to be in the mind through learning..." (Catlin, 1978, p.276). Universal aspects of language are "plausible candidates for the status of innateness" but are not necessarily innate (Catlin, *ibid*, p.277). However, if linguistic universals are found in historically unrelated communities then it provides evidence for the innateness hypothesis (Macdonald, 1978). Chomsky's innateness hypothesis which has remained the same from his Standard Theory through his Revised Extended Standard Theory (Suzman, 1985) emphasizes "...the child as hypothesis maker..." with innate abilities which enable him to discover those variations pertaining to his particular language.

Chomsky (1972) and McNeill (1970) argued for innate knowledge in language acquisition on the basis that input to the child is poor, often including complex ungrammatical sentences. However, recent

research has shown that the input provided to the child is not such a poor set of data. In this regard, Kuczaj (1982b, p.45) concludes that:

Obviously, an account of language acquisition that emphasizes the child's linguistic experiences must assume that language acquisition occurs because of linguistic input rather than in spite of linguistic input.

As Macdonald (ibid) points out, the language acquisition device is not triggered by mere exposure to a few instances of language use. Rather, the child displays sensitivity to language over a period of years (Atherton and Schwartz, 1974), and the functions which language serves expand markedly from middle childhood through adulthood.

2.3.2(a) "Ontological Knowledge"

Katz (1966), inspired by Chomsky's work, proposed that there is an underlying conceptual reality or a cognitive preparedness for acquiring language and word meaning. This suggests that words enter into an already-present, underlying reality of language. Similarly, Fodor (1976) argues that thought is primary and that language attaches to an already-present cognitive structure, an approach adhered to more recently (1979, 1983) by Keil.

Keil (1983) attempts to specify children's earliest types of knowledge which he terms "ontological knowledge". This he describes as "tightly structured" knowledge which "forms a primitive core for lexical meaning..." (ibid, p.104). He proposes that word meaning involves two levels of semantic development: the ontological level and the defining characteristic level. Children's ontological knowledge is supposed to play an important part in their acquisition of word meaning by guiding inferences about the meanings of unfamiliar words. Based on Sommers' approach (1963), Keil (ibid) emphasizes the importance of specifying the constraints on the hypotheses that the child can entertain. He argues that ontological categories form a strict hierarchy, and that predicates in natural language span ontological types on different parts of the ontological tree.

Arguing against Keil, Carey (1983) provides evidence to refute Sommers' major hypotheses and concludes that there are no structural constraints on natural kind concepts:

...we are left with the pessimistic proposal that the only constraints on inductive practices are the theories held at the moment of induction. The only constraints on natural concepts come from the entrenchment of concepts in theories currently held (Carey, *ibid*, p.141).

Keil's approach is subject to additional criticisms. Most pertinent to the ongoing discussion is that his view fails to account at all for the way in which a word alters its sense according to the linguistic context. He places a word at a particular node, thereby suggesting that its use in relation to other words is constant. This, in turn, suggests that once children learn to use the sentence 'The pain is in my chest', they can spontaneously use the sentence 'I am only pretending to be in pain' without further training or exposure. It is suggested in the present study that if the child acquires a word such as *same* and another such as *pain*, there is no a priori reason for his being able to use *same* and *pain* together as *same pain*. If he is able to make this generalization then it implies an innate capacity for language use. If not, it suggests that the child may need to learn each use of the word separately. However, the present researcher does not propose that there is an underlying ontological base.

Rather, it is suggested that children are able to generalize their uses of words in specific ways, selectively accounting for similarities and ignoring differences in their environment on different occasions. Tversky and Gati (1978) emphasize that the major problem in concept formation and concept structure research is how children and adults are able to segment the environment so that nonidentical stimuli can be treated as equivalent. As Quine (1969, p.116) states :

...there is nothing more basic to thought and language than our sense of similarity; our sorting of things into kinds. The usual general term...owes its generality to some resemblance among the things referred to.

Kuczaj (*ibid*) differentiates between innate language learning and innate knowledge, that is between process and content. Similarly, an innate ability to acquire language, that is, the strategies for language learning, must be distinguished from language itself as being innate. Putnam (1974) and Monod 1980 (cited by Piatelli-Palmarini,

1980) make an equivalent point to explain mathematical knowledge. The present emphasis is on the process of language learning as being innate rather than on the content as innate, as Keil's view suggests.

Clark's semantic feature hypothesis (1973, 1974) proposed that children extend words to novel referents which are "perceptually similar" to the referent to which they first apply the word. However, this does not take into account that we may group objects as 'similar' in one set of circumstances and as 'different' in another and that we may disregard similarities in some situations and disregard differences in others. Clark (ibid) does not take account of the "grammar" of the words which are being extended to these novel contexts.

Bowerman suggests (1981, p.17) that children may have "deep-seated cognitive predispositions towards perceiving certain kinds of similarities among events or relationships...". The child's awareness of similarities in his environment and his ability to shift emphasis in this way depending on the context may be innate, learned, or determined by an interaction between the two. "Grammar" and environmental similarity may require different processes or be independent branches of a parallel process. From the child's use of a word, we assume that he regards two referents as "similar" (whether perceptually or functionally) but we have not taken into account the extent to which he is aware that the word alters its sense when applied to a different context or when exactly he does become aware of this. Awareness is known to be a later developing function (see Section 2.4.2).

Quine (ibid) argues that a standard of similarity must be innate to some extent since all learning depends upon it, for example, language learning and induction. He concludes (ibid, p.134) that:

A man's judgements of similarity...belongs
in the subject matter not of our theory of
theorizing about the world, but of our theory
of the world itself...

Keil's studies could rather be viewed in terms of "language games", overlapping and intersecting in various ways and perhaps subsumed under other "language games". Hierarchical trees are incidental to

his experiment itself. As an example, 'is tall' may intersect with 'is honest' since both these "language games" apply to men.

Keil's findings (ibid) could be interpreted as yielding information about the extent to which his subjects have been inducted into various "language games". His suggestion that if the child uses a word appropriately, it tells us more than just that he can use the word, applies equally in the present study. It implies that the child has some understanding of the word (for example, that the word **pain** functions as a noun, in contrast to a word such as **help**); that he expects his utterance to give rise to a particular response on the part of the listener, and so on. The present study can be fitted into Keil's framework but this would merely constrain the study considerably. As an example, **pain** could be regarded as a "term" and **is the same as yours** as a "predicate". This would result in an investigation of one part of the predicability tree. However, this approach limits the qualitative data which is so rich a source of understanding of the child's language.

In concluding this section,

...it seems most likely that linguistic universals result from the interaction of processing and organizing predispositions (some of which may be innate, others of which may be learned) and environmental factors (Kuczaj, 1982b, p.51).

2.3.3 The stage approach and the development of word meaning

Much debate about developmental theory has revolved around the issue of stages. For some developmentalists a concept of stage is fundamental to the very idea of development. For others, stage is considered an impediment to understanding the nature of development. Whether for or against stages, every developmentalist must come to grips with the place if any, of stages in the theoretical edifice (Feldman, 1980, p.17).

In the discussion which follows, we look first at Piaget's equilibration model together with pertinent criticisms of this model; then at attempts to formalize stages for the development of word

meaning; our use of the word vocabulary, and finally, a consideration of individual domains of knowledge.

2.3.3(a) Piaget's equilibration model

Piaget's model (1971, 1977) describes in process terms the transition from one cognitive developmental stage to another. Piaget argued (ibid) that these stages are constructed by children as they interact with the environment and that they are neither biologically determined nor presented by the environment.

They cannot be given by the environment because at times they are factually incorrect (preschoolers often believe that the moon follows them around, that the wind is alive, and that dreams come in through the window at night). Nor are they innate because these 'wrong' ideas are later given up (Feldman, 1980, p.43).

For Piaget, the term 'stage' is not equatable to a corresponding chronological age but occurs within an age range. These stages emerge in a constant sequence although many variables affect the chronological age at which they appear (Inhelder, 1962). Piaget viewed development as occurring in the form of a staircase with shifts both within the same level of functioning (horizontal decalage) and to different levels of functioning (vertical decalage). Qualitative rather than quantitative changes occur from one stage to the next (Flavell and Wohlwill, 1969; Pinard and Larendeau, 1969; Szeminska, 1965).

Piaget proposed the notion of transitional stages as an inherent aspect of the developmental process. These stages comprise a period of stabilization during which newly-acquired structures are consolidated and differences in performance are accounted for by horizontal decalages (Pinard and Larendeau, ibid). Flavell and Wohlwill (ibid, p.81) suggest that this transition period occurs from the time when structures are "first-in-competence" up to the point at which they are "always-in-performance". During this time, the child's performance is influenced particularly by task and situational variables. Wohlwill (1973, p.21) points out that Piaget (ibid) and Werner (ibid) were more concerned with the differences between behaviours at particular levels of development than with the transitions or developmental changes from one level to another. The

present study focuses both on the behaviours noted within any age range and with the developmental changes from one age level to the next.

Numerous theorists have attempted to clarify the stage approach (for example, Flavell, 1970; Flavell and Wohlwill, 1969; Kessen, 1962; Pinard and Larendeau, 1969). Meltzer (1976) points out that the controversy has centered around whether stages do or do not exist rather than concentrating on whether the stage construct has predictive and explanatory value. Another question concerns the nature of the developmental change as either gradual or abrupt. Meltzer (ibid) suggests that the stage concept may be fundamental to Piaget's theory because the processes he measures lend themselves to such as explanation, contrary to the processes and issues dealt with by the behaviourists. The stage concept may reflect an approach to the study of behaviour rather than being a direct reflection of the child's behaviour (ibid, p.41).

In the late 1960's, the usefulness of the stage concept was questioned: stages evade empirical investigation; they were regarded as "mentalistic" and "axiomatic" and of "no heuristic value in guiding the work of developmentalists" (Feldman, ibid, p.2). It was argued, further, that stages assume a homogeneous internal organization which has not been found in empirical studies (for example, Turiel, 1966) and that the transformations to qualitatively different stages were difficult to explain. Flavell (1970, 1971a, 1971b) criticized Piaget's stage approach, arguing for a more gradualistic, process-based approach to stage development, namely that "...behaviours reflective of general stages are present at the same time" and that "...behaviours from new stages appear before the development of earlier stages is complete" (Feldman, ibid, p.3).

Brainerd (1977) argued that at any particular time, a child demonstrates behaviours from several stages of development. This has been supported empirically since children have been found to take several years to acquire concepts within a particular developmental stage (Feldman, ibid). Furthermore, with regard to stage development, Feldman (ibid, p.82) points out that :

"There is ample speculation in the literature about backward movement - what we have called

reversion - as part of the transition process...
we believe that the individual's overall
developmental organization does not move backward.
More plausible from our point of view is that
various elements in a generally forward moving
configuration are drawn back temporarily in
order to consolidate a level or enhance elaboration
of an emerging level..."

Numerous researchers (for example, Brainerd, *ibid*) have criticized Piaget's notion that a stage is a structured whole, that is, that a developmental domain can be characterized as a set of "idealized stages" (Feldman, *ibid*). Stages serve only as a model against which to gauge the behaviour of actual children. Feldman (*ibid*, p.5) accepts that the concept of stage assumes a structural whole but argues that "structured wholes" do not exist "in children's heads".

Fodor (1980) criticizes Piaget's interactionist view which he regards as a "compromise" between innatism and constructivism. Fodor (*ibid*) argues that there are no theories of concept learning: theories of learning to date explain how beliefs are fixed by experiences but not how concepts are learned. Progression from one stage to another must involve moving from a conceptually impoverished to a richer system and "it is never possible to learn a richer logic on the basis of a weaker logic" (Mehler, 1980 cited by Piatelli-Palmarini, *ibid*; Fodor, *ibid*, p.148). Fodor (*ibid*) argues that a stage progression occurs as a function of maturation.

The growth of language, apart from
obvious accretion of vocabulary, and
the growth of knowledge, apart from
obvious accretion of information, are
to be seen as the unfolding of
predetermined developmental stages
involving specialization and restriction
of competence (Piatelli-Palmarini, *ibid*, p.143).

Fodor's view (*ibid*) has been supported by Popper, Kuhn, and Lakatos (all cited by Piatelli-Palmarini, 1980) who argue that conceptual development is based on "fixation of beliefs", "nondemonstrative inference" and "hypothesis formation and confirmation" (Piatelli-Palmarini, *ibid*, p.161). Fodor (*ibid*) accepts that "more powerful formalisms" can be achieved by the child at certain stages but shows, on logical grounds, that this cannot be the outcome of a learning process.

... (it) must be a theory of how the environment selects among the innately specific concepts. It is not a theory of how you acquire concepts, but a theory of how the environment determines which parts of the conceptual mechanism in principle available to you are in fact exploited (Piatelli-Palmarini, *ibid*, p.151).

The implications for the present study of the above arguments are included in the section which follows.

2.3.3(b) The stage approach applied to word meaning and our use of the word vocabulary

It is apparently assumed by psychologists and speech - language pathologists that the child has a particular word in his repertoire when he uses the word appropriately. Such an approach disregards the stage progression in the development of word meaning. Vocabulary studies of word frequency in children (for example, Burroughs, 1963; Carroll, Davies and Richman, 1971; Edwards and Gibbon, 1973) follow this line of reasoning. These researchers do vocabulary counts at different age levels and conclude that a child's vocabulary is either within or below his age level. Similarly, traditional psychology and speech-pathology vocabulary tests accept as axiomatic that if the child uses or understands the word in a single context, he has it in his repertoire. Although different definitions may be given for scoring, these tests fail to include qualitative responses for children of different age groups. Examples of such tests are the Full Range Picture Vocabulary Test (Ammons and Ammons, 1948), the Basic Concept Inventory (Engelmann, 1967), the Peabody Picture Vocabulary Test (Dunn, 1965), the Clinical Evaluation of Language Functions (Wiig and Semel, 1980) as well as vocabulary subsections in tests such as the Wechsler Test for the Measurement of Adult Intelligence (Wechsler, 1944).

R. Clark (1982, p.16) argues that there is a "lack of correspondence between the conventional meanings of words and the meanings with which children invest them". Furthermore, it has been widely recognized that children do not "grasp the full meaning of the words they use" (R. Clark, *ibid*, p.16). Clark (*ibid*) points out that numerous comprehension studies (for example, E. Clark, 1973; Donaldson and McGarrigle, 1974) have demonstrated children's limited understanding

in this regard. However, the majority of tests to date have failed to take this into account.

Our notion of vocabulary appears to have constrained our thinking and to have limited our understanding of word use. The present argument accords with that of Mulford (1977) who proposed that a concept is dynamic in its development rather than static. Even as adults, we are constantly acquiring new uses for concepts which we already possess in some form.

To date, no stage progression in the development of word meaning has been widely accepted so we are able to take account of Fodor's arguments (ibid) prior to assuming a stage model. Recently, stages in semantic development have been proposed (for example, Hakes, Evans and Tunmer, 1980; Wiig, 1984) but they have not been accepted in any axiomatic form.

Within a Piagetian framework, stages follow a set order, each stage being attainable only once the previous stage has been reached. Each stage is qualitatively different from the stages which precede and follow and stages are mutually-exclusive and discrete. Later stages are of a higher order than earlier-developing stages and they enrich earlier-developing structures. However, even in cognitive development, the notion of discrete stages is not absolute and the stage concept is not fully resolved (Macdonald, 1985).

When applied to language development, additional difficulties are encountered. Language appears to be more of a unity than does cognition. This unity appears to be a characteristic of language itself (Macdonald, ibid). Once sentences and discourses are learned, there is a gradual increase in complexity of language use but not a qualitative shift to stages of a different order. Individual variation is also greater in language development than in cognitive development. Metalinguistic awareness tempts us into considering the child as having attained a different level of language ability because metalinguistic skills involve language as a control process. However, metalinguistic awareness is regarded as a skill appearing later in development rather than as a different developmental stage. There is still a gradual increase in the complexity of the child's language abilities.

Hakes et al (ibid) argue that during the preoperational period, cognition, sentence comprehension and word meaning appear to follow the same developmental progression although the properties to be inferred are different. Based upon her work with learning disabled children, Wiig (ibid) proposed stages in the development of word meaning paralleling Piagetian stages of cognitive development. For example, during the holophrastic phase, meanings are tied to the functions of words. During the preoperational period, (2-7 years), meanings are said to become associated with concrete actions. The concrete operational stage at 7-11 years parallels the child's being able to perceive more complex relationships and words take on broader meanings, with word definitions bound to sentence contexts. At the formal operational stage (11 years onwards), the child's word-definitions are equivalent to those of adults. The examples provided by Wiig (ibid) are of object-words (for example, **bird, bottle, mother**) and do not include non-ostensive word meaning. Furthermore, these examples do not take account of the "grammar" of these words.

In the present study, it is hypothesized that the child's use and understanding of a particular word alters with development. Trends rather than specific stages are postulated. As Macdonald (1978) has suggested, we may not know what constitutes a qualitative change in language development. At the preschool level, these changes are marked and, therefore, easily discerned. At the later stages, development slows down and subtler changes have to be noted.

Hakes et al (ibid) point out that both new words are learned and new senses are added to known words. The rudiments of this idea can be found in the work of researchers such as Dore (1974, 1975) and Halliday (1975). They argued that a variety of senses is expressed for any one word. However, they dealt with the early acquisition stages and did not elaborate with regard to the older child. More recently, the work of Mulford (ibid) who emphasized the dynamic progression of word meaning approximates the idea of the "grammar" of words.

It is evident that the child of 4-5 years does not have a fully developed linguistic system. Leech (1974, p.203) points out that:

Whereas we have learned the grammatical rules of English in all essentials by the age of five, we continue the process of acquiring vocabulary and new uses of vocabulary right the way through our lives.

More recently, psycholinguists (for example, Hakes et al, *ibid*) have suggested that, during the period of middle childhood, children become capable of linguistic intuitions which enable them to manipulate language beyond the level of comprehension and expression (see Section 2.4.2 for further discussion of metalinguistic awareness). The link between child and adult language has recently been suggested as resting in metalinguistic skills (for example, Hakes et al, *ibid*; Macdonald, 1983). However, individual differences have been observed in children's metalinguistic abilities during the middle childhood period in contrast to relative consistency between children on primary linguistic tasks (Tunmer and Herriman, 1984).

Metaphoric language seems on the surface, to be of importance in the present study. Metaphor involves the breaking of rules in a calculated way. The metaphor acquires its unique meaning from the rule that is broken. Some metaphors remain as metaphors only (in the language) but most of their word components can be used in their non-metaphorical ways as well. As Lanham (*ibid*) points out, the child is exposed to extensive rule-breaking of this kind both in his reading and in the imaginative language of fantasy play. Animals take on human qualities, inanimate objects acquire animate properties, and so on.

It is suggested (Lanham, *ibid*) that young children may be insensitive to the constraints which metaphor subsequently breaks down or transcends. If children argue that 'you can give somebody a pain', are they insensitive to the constraints imposed by the meaning of these words? Are they talking metaphorically? Winner (1978) described metaphoric language in children at the early stage of symbolic play (2-3 years) but we are unable to determine whether this is 'true metaphor' involving conscious manipulation of words on the part of the child.

As Leech (*ibid*, p.45) points out, metaphor involves "realigning boundaries". It has "a liberating effect".

It is not surprising that children's language produces many instances of semantic 'mistakes' which strike the adult as poetic...Using his generalizing ability, the child hits on physical appearance as a crucial criterion, at the expense of the criterion of function, which the language regards as more important. The difference between the two cases, of course, is that while the poet is familiar with the institutional categories and is aware of his departure from them, the child is not.

The child is, therefore, not displaying true metaphoric use of language.

From a developmental perspective, the present researcher is investigating how children progressively make the adjustments in learning the meaning of a word in all its diversity. What aspects of the word's meaning do children of different ages focus upon when required to reflect upon the word as it occurs in different contexts? As an example, what does the child understand by the word *same* in a task which includes the word *same* together with *pain*? Does he focus on the place of the pain or the type of pain as being important factors leading him to conclude whether they are the same or not? Does he assume that there are two pains and not one that is shared?

Lanham (ibid) postulates that certain errors in co-occurrence relations may occur at different age levels. As an example, young children may use collocation only: they have a very narrow range of word use. To them, one word may necessarily predict another within a limited vocabulary. Older and younger children reveal different types of errors. It would seem that children may not differentiate between co-occurrence restrictions (such as collocative constraints and selectional restrictions) in their use of language. However, this type of information is in the child's head and is, therefore, inaccessible to empirical investigation. Furthermore, collocative, selectional and stylistic constraints have only indirect bearing on the present study.

2.3.3(c) Stage development and non-universal achievement

Feldman (1980) deviates from a strict Piagetian position since he regards stages as applying not only to general, universal cognitive development but also to more individual domains of knowledge and skill which also comprise ideal stages mastered in an invariant sequence.

Stemming from his work with child prodigies, Feldman (ibid) proposes that non-universally acquired domains may also be developmental: for example, achievements which are cultural, discipline-based or idiosyncratic. These would be hierarchically organized, following a sequence in development with transitional phases but they need not be spontaneously acquired.

As an example:

The structure of chess (or any of many other domains) could (therefore) be seen as a series of increasingly sophisticated programs designed to play the game at succeeding levels (ibid, p.8).

The abilities tapped by the metalinguistic tasks in the present study cannot be assumed to be universal. In a personal communication (1984), Feldman predicted that the children's responses in the present study would be non-universal or unique in character. Along similar lines, G. Matthews (1980) discusses children's understanding of philosophical questions as unique to specific individuals rather than universal. The similarity between Matthew's tasks and those in the present study suggest that we cannot ignore either commonalities and stage development or individual variation.

Lieven (1980, p.37) notes that commonalities rather than individual differences are emphasized in child language studies, but she stresses the importance of taking individual differences into account in theories of child language. Research over the last decade has indicated differences between children even within the same population group (Bloom, Capatides and Tackeff, 1981; Nelson 1975a; 1975b). These researchers point out that "if the consensus fails, it may not be the analysis that is incorrect; the analysis could be correct, but the children could be different" (p.407). Kuczaj (1975) suggests that the acquisition sequence for the meaning of related words may vary from child to child but become consistent in the later stages. Accordingly, Bowerman (1982a, p.345) argues that research is required to determine the extent of individual differences in particular domains during language development and to isolate those factors which affect the child's "search for linguistic regularities".

Individual differences were considered of importance to take into account in the present study. Furthermore, the present study included

children from a particular sub-group (namely white, Jewish) within a particular culture (South Africa) so that, what may be determined here is not universal ability but rather, cultural versus unique ability.

2.4 Rationale for the method and research design

This section integrates the theories presented in sections 2.1, 2.2 and 2.3 with the orientation of the present researcher and with the method adopted in this study. An overview of the present approach introduces the section. This is followed by a discussion of the non-ostensive words selected for investigation, of metalinguistic awareness as the method adopted and of adult performance as the end-state in the developmental process.

The investigative procedures and theoretical basis of this study are psycholinguistic in orientation, derived in part from the prototype approaches. These approaches have been modified on the basis of inspiration from Wittgenstein's notion of the nature of meaning (1953). The prototype approaches describe superordinate categories (for example, fruit) and basic terms (for example, apple). The present researcher extends the principles and characteristics of prototypical referents to words, the meanings of which cannot be primarily explained by ostensive definition, for example, pain and pretend.

In line with specific prototype theories, the present researcher accepts that categories (words) consist of multiple prototypes as well as peripheral members. Members of the category bear a "family resemblance" to each other and the boundaries of the category are, in many cases, fuzzy. Modifying this approach and applying it to non-ostensive words such as pain and ache, it is argued that words do not have a core meaning but rather that the meaning of a word alters as it enters into co-occurrence relations with other words and with different discourse types. These in turn, are related to patterns of human activity. The notion of the alterations in a word's meaning as it co-occurs with other words in the language has been inspired by Wittgenstein (ibid) and is termed "grammar" in the present study. The co-occurrence of words in discourse types and their relation to patterns of human activity come close to Wittgenstein's use of

"language games" (ibid) and include conducting an interview and telling a joke, amongst other behaviours.

In arguing against a core theory of meaning, the present researcher applied the term "family resemblance" (used by Rosch as inspired by Wittgenstein, ibid) to non-ostensive word meaning: the senses of a word alter in different co-occurrence relations in different contexts and all these senses bear a "family resemblance" to one another. The boundaries between these senses of a word and between semantically-linked words (for example, pain and ache) are fuzzy, in that there is at times overlap of senses of the words.

Examples of tasks which reflect the inspiration that has been derived from Wittgenstein (ibid) are:

What is a pain?

What is a thought?

Can you have the same pain as me?

Can you feel my pain?

How do you pretend to be in pain?

The definition and fuzzy boundary tasks comprise different "language games".

It must be emphasised that the prototype theorists are not concerned with word meaning in the same way as the present researcher. They argue that an image of the category prototype is built up in the mind of individuals. This may be acceptable for category membership but, where the prototype theory is extended to non-ostensive word meaning, it is argued that a mental image is of no importance to our use of the word or to our understanding of the word's meaning.

Psycholinguistic research to date (for example, the feature theories and the numerous studies on overextension and underextension in children) has not concentrated on non-ostensive word meaning. It has also not adequately accounted for the way in which a word (even a substantive word) alters its sense as it co-occurs with other words, expressions and discourses in the language. What is here termed "grammar" has been taken for granted and has not, therefore, been questioned in numerous psycholinguistic studies. Many of these theories suggest that a word attaches as a label to a previously

acquired concept. If the present view concerning the "grammar" of words is supported, then it provides evidence which questions the 'label approach' to the acquisition of word meaning; the core theory of meaning; and the notion that an image is built up in the mind as a part of the meaning of the word.

The present approach cannot be dismissed as eclectic and atheoretical. In many respects, it involves expansion on the traditional approach to psycholinguistics, taking into account additional facets of, and problems related to, word meaning. For example, metalinguistically-phrased questions were formulated to examine children's understanding of non-ostensive words. It is of interest whether non-ostensive words are acquired in the same way as substantive words. The study of word meaning in older children is useful in examining this. Non-ostensive words are implicitly more complex than substantive words which suggests that they may be learned later in development.

2.4.1 Sources of non-ostensive words examined in this study

Numerous studies have investigated children's understanding of words, the meanings of which cannot be centrally explained by means of ostensive definition. However, these words have not been studied from the point of view of "grammar" nor from the general orientation adopted in the present study. A resume follows of research findings to date on the words relevant to this study. The coverage given to any particular word is determined by the amount of theory and research in this area rather than by its relative importance in the present study.

2.4.1(a) Pain "...gets a perhaps undue share of attention in philosophy" (Austin, 1979, p.254), providing a source of endless debate in philosophical circles. However, the word pain has not been investigated to date from a psycholinguistic perspective. Part of its "grammar" is that it cannot be applied to inanimate objects; that it cannot be transferred from one person to another; that it is used within a broad situational context involving cause, possible overt demonstration of pain behaviour and consequences; that the experience of pain is private but that we are able to communicate effectively about it with others; that we can point to the place of the pain but

not to the pain itself, and that emotional pain differs from physical pain. Furthermore, we have to feel pain in ourselves in order to have pain but we draw on a different set of criteria for detecting pain in another person. Pain and ache may both be applied to discomfort in any area of the body but ache is more commonly applied to certain areas such as tooth, head and stomach.

All these aspects reveal the "grammar" of the word pain and hence, its meaning. Pain, like other words is learned socially as Wittgenstein (ibid) emphasized. It is of particular interest because it has given rise to misconceptions in philosophy: it has been thought of as a 'mental' word which then de-emphasizes the social aspect of language.

Pain was grouped for investigation with ache and sore which are regarded as semantically-linked words. Context clearly plays a crucial role in the child's learning of these words and in adults' explanations about the words' meanings.

2.4.1.(b) Anger was included because it bears numerous similarities to pain while providing useful contrasts. As an example, pain is usually isolated to a particular area of the body whereas anger is not. Cross was included to gain a fuller understanding of anger.

2.4.1(c) Dream and Thought

Tim (6 years): Papa, how can we be sure that everything is not a dream? ...Well I don't think everything is a dream, 'cause in a dream people wouldn't go around asking if it was a dream.

Matthews: Couldn't one have a dream in which one asks whether one is dreaming?
I see no reason why not.
(G. Matthews, 1980, pp.23, 25).

Children's concepts of dreams and thoughts have been studied by many researchers (for example, Larendeau and Pinard, 1962; Piaget, 1929). These studies traced the child's ability to categorize these phenomena as 'mental' rather than investigating the words themselves (Johnson, 1982). Children commonly locate mental acts in the head and only later, regard them as immaterial. Initially, children associate dreams with ephemeral phenomena such as clouds; thoughts with an inner voice; and mind with an internal body part (Johnson, ibid). However,

Johnson (ibid) argues that the child is not interpreting **dream** to mean **see** or **think** to mean **say**. Preschoolers are able to distinguish appropriately between the uses of these verbs but are, as yet, unable to categorize these differences: the immaterial quality of thinking places it in a logically discrete category from speaking.

In the present study, the "grammar" of the words **dream** and **thought** is investigated. It is argued that the categorization Johnson mentions is part of the "grammar" of the word and that children will be able to apply these words appropriately in certain contexts even though their "grammar" is limited compared to older children. Whereas some people may be tempted to argue that **pain** has a physical reality, **thought** does not lend itself to such a temptation. Piaget (ibid) questioned children about dreams and thoughts but his analysis of the data did not account for the role of language. The present researcher adopted a linguistic orientation to understanding the words **dream**, **thought** and **daydream**. Findings are not entirely compatible with those of Piaget since they were applied to different population groups but insights may still be gained.

2.4.1.(d) Same, similar and different

Numerous studies have been conducted to investigate the words **same**, **similar** and **different**, particularly during the preschool period (for example, Donaldson and Wales, 1970; Karmiloff-Smith, 1977, 1979a; Palermo, 1973). A brief overview will be presented but it must be kept in mind that these researchers did not assess these words from the point of view of "grammar" nor did they study children beyond the age of 7 years. Previous researchers have discussed the senses of words (particularly of **same**) but they have not dealt with the way in which sense of a word alters according to the words with which it is associated. Children's ability to reflect upon the meanings of these words has not been examined to date.

Early research on children's comprehension of **same** and **different** (Donaldson and Wales, ibid) found that they treated both words as if they meant 'same' which was interpreted as revealing incomplete semantic acquisition. Three and a half year olds selected a similar object when asked for a **different** one. The authors suggested that the young child interprets **different** as 'different kind', selecting a similar object but one which is not identical. **Different** suggests to

the child an equivalence sense of same (for example, 'This book is different from this one' in that there are two books not one). Glucksberg, Hay and Danks (1976) applied the paradigm to adults and found that, in certain circumstances, adults respond identically to 'same' and 'different' requests, for example, 'a different one' (screwdriver) suggested another one of the same type.

A study by Webb, Oliveri and O'Keeffe (1974) revealed that when required to select 'a different object', children up to 3¹/₂ years of age chose an object which was maximally similar to the other object with correct performance occurring beyond this age. They proposed a four-stage model progressing from confusion of different with same; to the interpretation that different means 'another'; to correct use based on a dimension of similarity and finally, to adult use. Webb et al (ibid) restricted their application of same to two objects which share "at least one visible dimension". Different was applied to objects which differ "on one or more dimensions". They noted that two objects can also be both similar and different. These definitions necessarily impose limitations on the task when one considers the diversity of application of each of these terms both by individual subjects and from one context to another.

In the present study, it is argued from the perspective of "grammar" that one cannot define or establish a set number of criteria in investigating these words. Webb et al (ibid) impose constraints on these terms and therefore, on the child, which biases the task. A 'correct' response then accords with the experimenter's view rather than with that of the child. We may be able to determine from observable criteria (visual differences) what the child understands by different if asked, for example, for 'objects that are the same' but justifications would better elucidate the child's reasoning when handling such tasks. Webb et al (ibid) drew on justifications only in their second set of tasks which assessed different.

Webb et al (ibid) argue that same and different cannot be explained with reference to lexical marking as can other antonymic pairs such as big and little (H. Clark's view, 1970). They propose (ibid, p.984) that same and different refer not to "...any particular physical dimension but to an apparently infinite number of possible similarity

relations generated by the speaker according to the physical or linguistic context".

The findings by Webb et al (ibid) concerning the word **different**, accord with the findings of Karmiloff-Smith (1977) on **same** with French-speaking children. She investigated **same** and **other** as post-article determiners. She reported that children of 3-4 years incorrectly interpret 'the **same**' as 'same kind' (equivalence sense) rather than as 'same one' (identity sense). Three year olds regard **same** as suggesting that all attributes are identical which is not the case at 4 years. From 6 years, children are able to interpret **same** and **other** as post-article determiners. The use and understanding of the functions of determiners, therefore, develops gradually with age.

Karmiloff-Smith (ibid) suggests that the relations between article, post-article and noun and their positions in the noun phrase may result in different interpretations, for example, 'Is it the same?' and 'Is it the same duck?' However, she explains this in traditional grammatical terms with reference to noun, noun phrase and so on. "Grammar" as applied in the present study would alter the focus of this interpretation. Karmiloff-Smith (ibid) also emphasized the importance of taking into account the type of task; the context of the utterance; whether presented in isolated sentences or in discourse, and so on. She examined whether **same** occurred in subject or object positions and found that 'same one' was first applied correctly in object position. This is of importance since the majority of researchers fail to investigate such differences.

Karmiloff-Smith (ibid) argues that children use one function for a term, or if two functions are used, the child is unaware that these two functions are covered by the same term. By about 5 years, they may overmark a function or create new, ungrammatical forms to differentiate functions. She found that the children understood the expression to mean 'same one' and created a separate expression to mean 'same kind'. This is similar to the suggestion that children may have to learn verbs with their inflections for example, **fit** and **fits** or **play** and **playing** as two separate lexical items just as they have to learn **break** and **broke** as two separate words (for example, Bloom, Lightb own and Hood, 1975). This has important implications for the "grammar" of words, emphasizing that the child's ability to generalize

the use of a word from one function to the next cannot be taken as axiomatic. It is also possible that the 'conversational state' versus 'mental state' uses of particular verbs (for example, **think** and **know**) may be learned as different words (Wellmann and Estes, 1984).

Karmiloff-Smith (ibid) questions whether her results should be interpreted as an outcome of general cognitive development, whether the 3 year old is particularly concerned with resemblances and differences or whether there is something linguistic operating. She states (ibid, p.390):

It seems clear that with development children tend to endow linguistic terms such as the same x with different functions, irrespective of the particular conceptual task in which they are being questioned. It is therefore suggested that language is an important experimental variable, a fact that has hitherto been underestimated in Piagetian research...

Language serves not only as a 'tool for intelligence' but "is actually for the child a problem area within its own right" (ibid, p.392).

In summary, Karmiloff-Smith (ibid) found that :

i) The child initially interprets same as same kind since it matches his classificatory system of modifier and noun.

ii) Same kind interpretations are more frequent since same one meanings are often replaced by pronominalization.

iii) The final grasp of same as meaning same one may be aided by the child's grasp of other since then, another x may be used for same kind.

iv) Young children seem to use language in reference to the extralinguistic context which may affect their preference for 'same kind'.

Analysis of **same**, **similar** and **different** was also important in the present research as a preliminary means of assessing tasks which included these words in the task itself. As for **pretend**, the "grammar" of **same** was investigated in relation to the "grammar" of **pain**, **anger**, **dream** and so on.

The word **same** is of particular interest: 'Sameness' underlies learning in general and word meaning in particular as well as the generalization and extension of words to novel situations (as discussed in 2.3.2a). In accordance with the present orientation, similarity plays a part in the use of a word over a diversity of contexts, whether it is termed a "family resemblance" or a commonality of 'features'. Even metaphoric usage is subject to such similarity.

2.4.1(e) Pretend

Nouns are described as characterizing classes of objects with verbs expressing relations between concepts (Hagendorf, 1983). Hagendorf (ibid) found that missing feature lists provide inadequate descriptions of verb meaning. Amongst the verbs being investigated in the present study is the word **pretend** which has received attention from philosophers (Austin, 1979; Wittgenstein, 1953) and psycholinguists (for example, Hidi and Hildyard, 1979; Olson and Astington, 1984). The words **know**, **believe** and **think** have been previously assessed together with **pretend** but again, not from the point of view of "grammar".

The complexities of pretending are discussed in an article by Austin (ibid, p.267) who points out that:

It is quite misleading to handle pretending in the way it is so often handled, as identical with being (or being doing) except that some special feature is left out... that pretending to be in pain is just the same as being in pain except that you do not feel pain, or that pretending to be angry is behaving like a really angry man only without feeling like one...

The complexities of pretend behaviour are revealed in the following examples: if we pretend to be in pain, there may or may not be a cause leading up to the display of pain behaviour; if we pretend to laugh, there may be nothing funny to laugh at, or we may not regard a joke as funny and laugh to be polite; it may or may not sound different from an ordinary laugh but be voluntarily not spontaneously produced.

Pretending involves "pretence-behaviour, the actual public performance gone through in pretending...the reality dissembled, about which the audience is to be hoodwinked... (and) some real-behaviour-dissembled",

for example, pretending to be kissing the carpet when you want to disguise your real behaviour of biting it (Austin, *ibid*, p.260). However, Austin (*ibid*) discusses additional complexities which are involved in pretence. Only a few examples are drawn on below :

i) There is a limit which, even if vague, must not be overstepped. For example, a man may smash the furniture or commit an assault when he is pretending to be angry. In this case, he has overstepped the limit, is no longer pretending, "and it is useless for him to protest afterwards that he did not feel angry" (Austin, *ibid*, p.254). Inadequate public evidence may make it difficult to determine whether a person is pretending to be angry or whether he is really angry. Similarly, this is difficult to determine for being in pain in contrast to pretending to be in pain, because the person alone possesses the decisive evidence in this regard.

ii) One can be very angry but not display this conspicuously. Someone may also be pretending to be angry where the success of the pretence matters seriously and he "may hit upon biting the carpet as the very thing to clinch the deception" (Austin, *ibid*, pp.255-256).

iii) In certain instances, an impasse may arise, for example, "...there seems to be nothing one can do at all like holing the putt which will not result in the putt's being actually holed" (*ibid*, p.258) or pretending to walk which does not involve actually walking. Austin (*ibid*, p.259) illustrates that in pretend to do or to be doing an action, we are not always debarred from actually doing the action itself.

iv) Austin (*ibid*) points out that the "essence of the situation in pretending" is that the pretender is suppressing or concealing something.

v) In many cases, there seems to be a clear difference between 'pretending to A' and 'pretending to be A-ing' (*ibid*, p.263). Austin gives as an example the following: "children who are ignorant may typically be 'pretending to play chess'; children, ignorant or not, who are up to mischief may typically be 'pretending to be playing chess'".

vi) Austin (ibid, p.266) argues that pretence must be distinctively like the genuine article simulated: "you will hardly pretend to be angry by simulating the behaviour of an angry man in perfect control of himself..." There are also cases in which one can behave like an angry man or make others believe one is angry, which are not cases of pretending.

vii) Pretending to oneself borders on the activity of 'make believe', when we "...suppress our actual beliefs and simulate others" (ibid, p.270).

viii) Austin mentions that 'elaborate' pretences, such as dressing up and making oneself up, lead to our talking of "impersonation", "imposture" or "disguise", all of which may be encompassed by the word **pretend**, if precision is not important.

Austin concludes (ibid, p.271) that:

...in the long term project of classifying and clarifying all possible ways and varieties of not exactly doing things, which has to be carried through if we are ever to understand properly what doing things is, the clarification of pretending, and the assignment to it of its proper place within the family of related concepts, must find some place, if only a humble one.

How children come to learn the "grammar" of this word is of interest to the present researcher.

2.4.1.(f) Know, Believe and Think

Pretend may also be viewed along another dimension in relation to **know, believe and think**. These 'mental verbs' (as they are commonly termed), including others such as **mean, forget, remember, guess and dream**, accounted for 95% of all the mental terms produced by a group of children of 2-5 years (Wellman and Estes, 1984). For factive verbs such as **know**, "the speaker holds the complement clause to be true" and this is retained when the main verb is negated (Scoville and Gordon, 1980). For non-factive verbs such as **think, believe and pretend**, different possibilities may be assigned to the truth of the complement (Scoville and Gordon, ibid).

Studies on factive and non-factive verbs have been carried out by numerous researchers (for example, Harris, 1975; Hopmann and Maratsos,

1978; Johnson and Maratsos, 1977; Johnson and Wellman, 1980, 1982; MacNamara, Baker and Olson, 1976; Olson and Astington 1984; Wellman and Estes, *ibid*). Scoville and Gordon (*ibid*) summarized the findings of many of these studies and concluded that generally, the acquisition of factivity occurs on a verb-by-verb basis. They found that verbs do not fall neatly into the two categories of factive and non-factive and that the acquisition of factivity progresses gradually. However, there is no consensus as to exact stages of development. Children's knowledge of these verbs has been found to be "far from complete" (Olson and Astington, *ibid*). They fail to comprehend "the precise meaning" of these verbs even though they can apply these verbs appropriately in natural situations. Olson and Astington (*ibid*) argue that "the full use" of these verbs is only mastered well into the school years. Wellman and Estes (*ibid*) report similarly, that whereas 4 year olds are competent in dealing with mental presuppositions, factivity and false beliefs, their understanding of mental terms progresses until 8 or 9 years of age.

Olson and Astington (*ibid*) argue that children may have beliefs and intentions without knowing the words *believe* and *intend* but that they will only be able to distinguish between a speech act and its mental state (for example, promise and intend) when they are able to use these terms. Their comprehension of these terms will enable them to understand that a person may hold one belief while expressing another.

Mental states such as 'believing' and 'intending' have become central to theories of cognition and relate directly to speech acts (Olson and Astington, *ibid*). These researchers add that in certain cases, the mental state does not appear to exist apart from the speech act and that, therefore, "...if they do not know the word, they do not possess the concept...they can say and mean things but they do not have the concepts of saying and meaning..." (*ibid*, p.22). They suggest that metacognitive processes may be dependent on the child's use and comprehension of these metacognitive verbs:

A child learning the metalanguage comes to make the conceptual distinctions marked by these terms and he cannot make these distinctions if the terms are not known (*ibid*, p.18).

The viewpoint of the present researcher is in direct accordance with this conclusion.

A distinction has been made (for example, Wellman and Estes, *ibid*) between the use of the words **think**, **know** and **believe** as "conversational terms", as in:

'You **know** what?'

'I **think** it will rain'

and as "mental terms", as in:

'I **know** that the earth is round'

'I have to **think** out this problem'.

When used as "conversational terms", these words indicate the degree of reliability of statements, rather than suggesting a mental act (Johnson, 1982). Wellman and Estes (*ibid*) found that conversational use occurs first although mental reference occurs from as young as about 3 years of age. At this stage, the child does not have complete facility with these verbs but he is aware that mental and real entities differ. Only at 6 or 7 years is he able to use terms such as **pretend** and **think** appropriately (Olson and Astington, *ibid*).

Johnson (*ibid*) outlines a developmental sequence for mental terms: by 3 years, the child is able to use these terms to talk about things beyond those in his immediate environment; by 4-5 years, children have a practical understanding of the cognitive meanings of verbs such as **think** and **know**; in the early school years, they develop a more structured semantic system and are able to contrast relations between terms, for example, **know** contrasted with **guess**.

Perceptual information has been regarded by some researchers (for example, Clark in her semantic feature theory, 1973; 1974; Gentner 1978) as the basis for children's early word meanings. Johnson (*ibid*, p.462) points out that this does not hold for verbs such as **think** and **know**, words for which "the child acquires a more global sense of these relational meanings". He adds that this supports considerable evidence that there is no single model which adequately predicts the sequence of semantic development.

The present researcher aims to investigate these words from the point of view of "grammar". Syntactic knowledge has been described as being

part of the meaning of a word with the "full meaning" of the verb being grasped only once the child has comprehended the syntactic structures associated with it (Olson and Astington, *ibid*, p.8). In the present study, certain syntactic factors such as factivity are regarded as forming part of the "grammar" of the word: a word is used in specific ways and because of its meaning, is able to combine with specific words only.

Hagendorf argues (1983, p.235) that language involves "a complex network of interrelationships among words" for example, to answer the question 'Who got the book?' in the context of 'The boy gave the girl the book', involves manipulating the relationship between **get** and **give**. The child is capable of such an operation later in language development (Bowerman, 1978a). A similar relationship was investigated in the present fuzzy boundary tasks such as, 'When does a pain become an ache?' Other relationships being investigated differ from those of Hagendorf (*ibid*), for example, **feel the pain** and **feel the puppy** which do not concern relationships from one verb to another but rather, relationships between words co-occurring in the language.

The verbs **know**, **believe** and **think** may be viewed in one respect, along a continuum, altering in degree of certainty. Other dimensions intrude, for example: **Pretend** differs from these other words: it is the inverse rather than the converse of **know**, that is, **pretend** does not mean 'not know' but rather, it implies that one 'knows' but that one chooses to act as if something else were the case. It is also not only cognitive as are these other words.

2.4.1(g) The words do, feel, see and the interrogative form where were analysed in relation to the other words selected. They were included to ascertain whether or not apparently simpler words are subject to the issue of "grammar" in the same way as more complex words.

2.4.1(h) Finally, the word word was included only as a brief pretest. It was felt to be particularly important for the 6 year olds to ensure that tasks which included word in the instructions could be understood, for example, "What does the word different mean?" For the 6 year olds, 'What is a sentence?' was also included for this reason. From the pilot study, it was evident that some, though not all, 6 year

olds regarded a word as a sentence or as a phoneme. For each individual child this was taken into account in subsequent questions and instructions were rephrased according to the child's frame of reference. As an example, certain 6 year olds described a sentence as 'a word', others described a word as 'a letter' and still others described a sentence as 'a story'. If a sentence was equated with a story, this child was then asked to 'make up a little story with...' when a sentence was required. It was crucial that the children understand the instructions. These alterations did not affect the context of the tasks themselves.

This pretest aimed to determine not whether each child has 'full comprehension' of the word word but only whether he has adequate comprehension of word for the experimental questions to be clearly understood. Studies on the word word (for example, Berthoud-Papandropoulou, 1978; Bowey and Tunmer, 1984; Downing and Oliver, 1973/74; Papandropoulou and Sinclair, 1974) were not of relevance to the present research.

2.4.2 Metalinguistic awareness: Reflecting on word meaning

"...language goes on holiday..."

(Wittgenstein, 1953, pt.38).

Languages can be used to talk not only about the world in general, but also about themselves and other languages (Lyons, 1981, p.18).

2.4.2(a) Clarification of main terms

Languages have the capacity to refer to or to describe themselves (Lyons, 1977) which is identified by the technical term 'metalinguistic'. Metalinguistic awareness has been defined as "the ability to make language forms opaque and attend to them in and for themselves" (Cazden, 1976, p.603), that is, the language system itself is "treated as an object of thought". Language is divorced from its context (Donaldson, 1978) which is not a necessary consequence of using language for communication. Rather than focusing on content, the child focuses on those structures which convey content. As Donaldson (ibid, pp.87-88) argues, in the early stages of language development:

The child's awareness of what he talks about...the things out there to which the language refers... normally takes precedence over his awareness of what he talks with...(and) language is embedded for him in the flow of events which accompany it.

Metalinguistic ability must not be confused with 'metalanguages' which are "highly formalized" languages constructed by linguists and logicians for the purpose of "describing ordinary, natural languages as precisely as possible" (Lyons, 1981, p.18). Examples of metalinguistic terms are 'lexeme', 'word', 'phrase' and 'phoneme'. Metalinguistic awareness refers to awareness of the instantiations of these terms, rather than to knowledge of the terms themselves. As an example, a metalinguistically-aware child may demonstrate adequate manipulation of phonemes without knowing what the term 'phoneme' means (Tunmer and Herriman, 1984).

The term 'metalinguistic awareness' has been distinguished from the terms 'tacit knowledge', 'linguistic competence', 'linguistic intuitions' and 'explicit formulation' (Marshall and Morton, 1978; Tunmer and Herriman, *ibid*). 'Tacit knowledge' is the speaker's unconscious knowledge of the rules of the language. 'Linguistic competence' on the other hand, refers to the speaker's knowledge of his language (Chomsky, 1965). 'Linguistic intuitions' are judgements made about the language system and they involve 'metalinguistic abilities'. However, children may be able to perform metalinguistic operations without having linguistic intuitions. The latter would enable them to make explicit judgements about language structure and function (Tunmer and Herriman, *ibid*). 'Explicit formulations' include judgements of sentence acceptability, synonymy, phonological sequences, and structural ambiguity (Tunmer and Herriman, *ibid*).

Donaldson (*ibid*) points out that the term 'metalinguistic' has been overused and that, in many cases, the term 'language tasks' would be equally appropriate. In line with this, Karmiloff-Smith (1979a) distinguishes between metalinguistic data and epilinguistic data. The former is derived from questions such as, 'What is a word?' and 'Is **the** a word?'. The latter taps the child's awareness of the implicit syntactical rule he is using such as that of gender concord. Karmiloff-Smith (*ibid*) argues that such a distinction is heuristically valid since it may make different cognitive demands. In the present

study, such a distinction is not of value since explicit formulation of rules is not being assessed. The term 'metalinguistic awareness' is adhered to.

Tunmer and Bowey (1984) describe four types of metalinguistic awareness, namely, phonological, word, form and pragmatic. Word awareness, of most relevance to the present study, deals with words and their meanings, particularly with word segmentation, word-referent differentiation, and appreciation of linguistic jokes. Judgments of semantic factors have been predominantly concerned with children's awareness of synonymy, acceptability, phonemic segmentation and violations of selection restrictions (Hakes, Evans and Tunmer, 1980; Macdonald, 1983).

A large body of research on metalinguistic awareness indicates that young children focus on the meanings of the words, phrases or utterances on which they're asked to reflect, rather than on their form (Hakes et al, *ibid*; Berthoud-Papandropoulou, 1978; Berthoud-Papandropoulou and Sinclair, 1983). In the present study, the child is specifically required to reflect upon word meaning in questions such as 'What is a pain?'

2.4.2(b) Views regarding the development of metalinguistic awareness in children

As Macdonald (1984, p.6) points out:

...it is very definitely the case that metalinguistic awareness research is not placed in the mainstream of current developmental psycholinguistic research. It is primarily atheoretical...(and) It is not attempting to demonstrate the descriptive or explanatory adequacy of any particular linguistic theory...

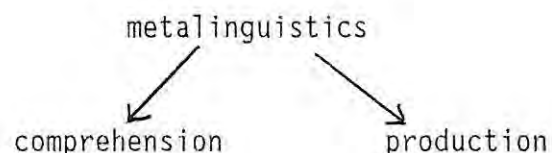
The field of metalinguistic awareness lacks generally accepted and reliable methods of assessment and consensus regarding the age at which different metalinguistic skills emerge (Tunmer and Herriman, 1984). Longitudinal data is sparse. Whether metalinguistic awareness is a single ability or an ability comprising numerous subprocesses and what underlies these skills is contentious (Clark, 1978a; Donaldson, 1978; Macdonald, 1983). Clark (*ibid*) mentions skills as diverse as

monitoring one's ongoing utterance, checking the result of an utterance, and deliberately attempting to learn new words.

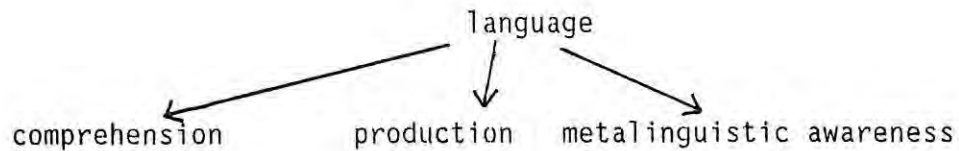
Despite the need for theory-building in this area, the work on metalinguistic awareness is the most enlightening on language abilities beyond the preschool period. Higher level comprehension tasks such as those of C. Chomsky (1969) have been extremely valuable but do not offer the scope for evaluating the differences that occur in the performance of school-going versus preschool children. It has been proposed that metalinguistic judgements offer the only sound basis for adequately explaining language development during this period (Gleitman, Gleitman and Shipley, 1972; Scholl and Ryan, 1975).

The relationship between language use and metalinguistic awareness is a complex one. Metalinguistic tasks are removed from everyday language use and thereby, create an unnatural language situation. However, as was mentioned earlier, beyond the preschool period, we have no alternative if we are to assess the child's language abilities in more depth than comprehension and production tasks allow.

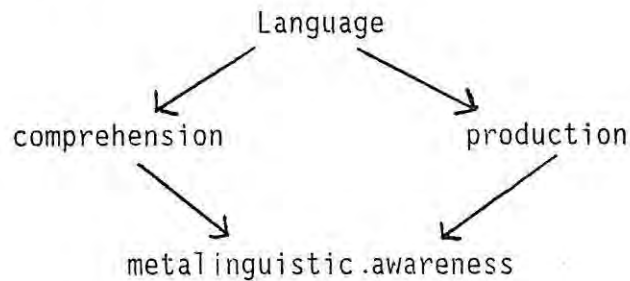
There has been a tailing off of the volume of metalinguistic studies perhaps due to this apparent artificiality. The extent to which our ability to reflect upon language bears upon our ability to use language efficiently, is questionable. It does not seem to be necessary to analyse language in order to be able to use it although part of our understanding of a word's meaning (for example, pain) may stem from our ability to answer questions about it (such as, 'What is a pain?'). When viewed in this broad sense, metalinguistic awareness may be placed at the pinnacle of a hierarchy encompassing both comprehension and production, that is



In contrast, in its narrow sense, metalinguistic awareness may constitute one component of language at the level of comprehension and production, that is



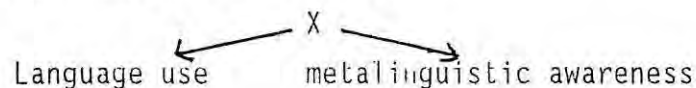
or qualitative differences in the understanding of word meaning may be of importance in the further development of language use beyond the preschool period, that is :



It is possible that our ability to reflect upon language, even at a sub-conscious level, is a necessary condition for increasing our mastery of language. 'Ordinary' comprehension may reach a certain level beyond which it does not advance. On the other hand, metalinguistic awareness may have little bearing on language use but be of relevance only to the child's general cognitive functioning.

If language use and metalinguistic awareness do not correlate with each other and are, therefore, able to be separated, the following possibilities exist:

- i) An underlying phenomenon (X) may give rise to both language use and metalinguistic awareness, that is,



- ii) Language use may precede metalinguistic awareness in development, that is, language use → metalinguistic awareness

- iii) Language use and metalinguistic awareness may be independent but interacting abilities, that is, language ↔ metalinguistic awareness.

- iv) Metalinguistic tasks may assess behaviours which are an outcome of our language use, a 'side-effect', or by-product, having no or

minimal bearing upon our language skills in general development. If so, children at different age levels may reflect differently upon language as a consequence of their general stage of development in combination with their language skills. However, this approach would imply that their ability to reflect upon language is of no relevance to the advancement of their language itself.

v) Metalinguistic awareness may be a strategy that children are able to employ at certain periods of development rather than being a skill (Wiig, 1985).

There are three predominant views regarding the development of metalinguistic awareness in children. Each view includes aspects of the possible relationships presented above.

i) It has been suggested that metalinguistic awareness develops simultaneously with language acquisition (Clark, 1978a; Marshall and Morton, 1978). On the basis of the spontaneous corrections children make to their own and to others' speech from 2-3 years of age (Clark, *ibid*), it has been argued that children must be able to reflect upon their utterances even at this early stage.

Other researchers regard self corrections as being at the "border of awareness" rather than being the result of very explicit reflection on language (Levelt, Sinclair and Jarvella, 1978). It is suggested that there are different levels of explicitness of metalinguistic data. The ability to repair one's utterances is not a necessary condition for language development since a child may be able to comprehend language without being able to produce it (Tunmer and Herriman, 1984). Furthermore, Tunmer and Herriman (*ibid*) differentiate between awareness of linguistic structure and awareness of failure with only the former being 'metalinguistic'.

ii) The second view is that metalinguistic awareness develops as a distinct function in middle childhood (the age range from 4-8 years) and is related to a more general change in information processing abilities that occur during this period. There is a great deal of research indicating that, during this period, the child develops a variety of linguistic skills all of which require that he reflect upon

and manipulate the structural features of language (Tunmer and Herriman, *ibid*).

Flavell (1977, 1978, 1981) and Tunmer and Bowey (1984) suggest that both metalinguistic awareness and concrete operational thought may reflect a more general change in underlying cognitive abilities, termed 'metacognition'. Flavell (1981, p.37) defines 'metacognition' as "knowledge or cognition that takes as its object or regulates any aspect of any cognitive endeavour".

A relationship has been proposed between cognitive and linguistic development during the pre-operational period because similar patterns are revealed in responses to these tasks (Hakes, Evans and Tunmer, 1980). It has been suggested that this relationship may extend into the concrete operational period (Karmiloff-Smith, 1979b). Both metalinguistic awareness and concrete operational thought involve the ability "to control the course of ones own thought" (Tunmer and Herriman, 1984, p.30) and the question of control has been regarded as vital to "disembedded thinking" (Donaldson, 1978, p.94). In accordance with this, Flavell's recent research (1981) has pointed to middle childhood as the period during which the child is increasingly able to control his own intellectual processes over a wide variety of tasks.

It is predicted that if a child is advanced on one metalinguistic task he should be advanced on all and that there will be a positive correlation between metalinguistic tasks and non-metalinguistic tasks which require metacognitive operations (Tunmer and Herriman, *ibid*). Sinclair (1978, p.200) proposes that there is a parallel between metalinguistic awareness and awareness in other cognitive domains and she concludes that, if so, studies on metalinguistic awareness "...offer a particularly fertile method of studying the mechanisms of language acquisition". Studies to date (for example, Hakes et al, *ibid*; Tunmer and Fletcher, 1981) support these predictions but Tunmer and Herriman (*ibid*) caution that controlled cognitive processing may not be the only factor contributing to these findings. A different approach is put forward by Hirsch-Pasek, Gleitman and Gleitman (1978). They suggest that metacognition may not resemble, formally, the cognitive process it guides and organizes. Rather, there may be resemblances amongst the higher-order processes themselves. This

would suggest that judgements are related to reasoning rather than to speech and comprehension.

Numerous researchers (for example, Brown, 1980; Flavell, 1981; Vosniadou, Ortony, Reynolds and Wilson, 1984) point out that paraphrase and explanation introduce cognitive demands over and above those required for comprehension. The highest levels of metalinguistic ability and logical operations may parallel and interact, for example, hypothesizing may incorporate both abilities. Flavell (1977, p.178) considers problem solving communication tasks to be a late-developing ability involving "thinking about the message (metacommunication) rather than sending it (communication)". These types of tasks require that the child consciously analyse and evaluate the verbal message.

Cazden (1976) regards metalinguistic awareness as a special type of language ability which is cognitively demanding in a particular way and which is less universal and acquired at a later stage than comprehension and expression. However, parallels have been proposed between metalinguistic abilities on the one hand and comprehension and production on the other. Karmiloff-Smith (1979b) views both spontaneous utterances beyond age 5, and metalinguistic awareness, as involving a move from extralinguistic to intralinguistic reference (at 9 years). She suggests that both these abilities may reflect an underlying cognitive change that occurs during this period. During the pre-operational period, children apply inductive strategies which lead to systematic errors (for example, on conservation tasks) and which may, similarly, be observed in language development.

Berthoud-Papandropoulou (1982, cited by Macdonald, 1984) classified responses into extralinguistic (4-5 years), intralinguistic (7 years) and metalinguistic (11 years), on tasks in which children were required to make comprehension judgements of hypothetical and counterfactual French conditional sentences. Macdonald (1983) confirmed that children progress from extralinguistic to intralinguistic justifications and then to definitional answers. Her study investigated children's understanding of the actuality implication of certain modal and semi-auxiliary verbs. Extralinguistic justifications included examples from the child's own experience or the focus on specific characteristics; intralinguistic

justifications comprised general explanations which move away from specific individual experiences; and metalinguistic answers involved an attempt to formulate a rule.

iii) The third view concerning metalinguistic awareness is mainly proposed by Donaldson (1978) although others (for example, Vygotsky 1962) adhered to this view as well. Donaldson (ibid) argues that schooling and particularly, reading, results in increased metalinguistic skills such as an extensive metalinguistic vocabulary (Levelt, Sinclair and Jarvella, 1978). This then affords the child greater control over his thought processes which enables him to use his cognitive abilities in a wider variety of situations. Donaldson (ibid) stresses the importance of the early acquisition of reading skills.

Numerous researchers propose some relationship between reading and metalinguistic awareness (for example, Cole and Scribner, 1981; Luria, 1976) but the cause-effect relationship is unclear (Tunmer and Herriman, ibid). Metalinguistic ability is thought to be an important pre-requisite for learning to read as well as developing further, subsequent to the onset of reading (for example, Calfee, Lindamood and Lindamood, 1973; Ehri, 1979; Mattingly, 1972). Tunmer and Herriman (ibid) argue that many children who cannot read, perform well on metalinguistic tasks and that Donaldson's view fails to explain why certain children with no apparent sensory deficits have difficulties in learning to read; nor how literate and nonliterate children follow equivalent patterns of cognitive development.

Learning to read does not appear to be a necessary condition for the development of metalinguistic awareness (Tunmer and Herriman, ibid) although reading instruction and the formal written language of the classroom may increase metalinguistic awareness (Watson and Olson, in press). Watson and Olson (ibid) supply cross-cultural evidence which supports the view that literacy and metalinguistic abilities are related. They argue that the sense of the word **word** is associated with written language: it is not found in oral poetry in Yugoslavia nor in certain West African languages.

Tunmer and Herriman (ibid) conclude that empirical research predominantly supports the view that metalinguistic awareness is a

distinct linguistic ability emerging during middle childhood together with a more general change in processing abilities during this period (the second viewpoint discussed above). It is this viewpoint which is adhered to by the present researcher.

It is clear that, beyond the preschool period, children are able to comprehend and to express themselves competently. From their performance, they appear to be as competent as adult speakers in that they are able to use words in diverse ways even though they have a more limited vocabulary and shorter, simpler sentence constructions: there appear to be a few qualitative differences between child and adult speakers in this regard. As Macdonald points out (1984, p.10), in terms of previous research on metalinguistic awareness in children, "we must expect a gap between appropriate use and the ability to explain the usage". Karmiloff-Smith (1979a) found that epilinguistic awareness was $1\frac{1}{2}$ - 2 years behind spontaneous use of the same items. This appears to apply equally to reflecting upon the meanings of words. Metalinguistic tasks allow one to penetrate beyond the surface to the child's deeper understanding and, at this level, qualitative differences present themselves. In the present study, metalinguistic-type questions were used for this reason.

Metalinguistic research to date has concentrated on the developing metalinguistic skills in children of 5 years and older but few have drawn on metalinguistic tasks to investigate the development of word meaning per se, certainly not from the point of view of "grammar". In this study, the aim is not to investigate how children acquire the meanings of words. Rather, it is argued that a great deal of development in word meaning occurs beyond the initial acquisition period (birth to 4 or 5 years). Children beyond about 4 years of age display few errors in their language expression and metalinguistic tasks offer the only means of penetrating to their deeper understanding of words at this period of development.

In the present study, 'metalinguistic awareness' is regarded as an ability arising during the middle childhood period. It is accepted that it builds upon the child's comprehension and production abilities, being both an extension or higher level of these abilities (quantitative progression) as well as being qualitatively different in many ways. Metalinguistic ability may comprise a different

developmental stage from that of comprehension. In the stage of metalinguistic awareness, the ability to reflect upon language predominates, together with the ability to comprehend at a progressively higher level. Abilities such as reading which build upon metalinguistic skills would be enhanced at this stage.

In addition, metalinguistic ability is not being investigated as an end in itself. Rather, metalinguistically-phrased questions provide the means of assessing children's knowledge of the "grammar" of words. However, processes and strategies used by children in handling these tasks may add to previous research findings in the area of metalinguistic research.

The present tasks reflect the child's knowledge of the "grammar" of the word pain and of what the word pain means in questions such as: 'I have a pain in my head but I can't feel it: does that sentence sound OK or not?' or 'Can you have my pain?' These questions differ from 'true' metalinguistic questions such as: 'What is the difference in the meanings of feel in these two sentences:

'I feel pain' and
'I feel awkward'.

Levelt, Sinclair and Jarvella (1978, pp.10-11) caution against confusing "the child's capacity to explain verbally" with "his growing capacity to reflect on language". Explaining requires that the child express fairly complex ideas in a proper linguistic form, a complex verbal activity, but this can be separated from a reflexive awareness of language. In the present study, meaning is the object of reflection rather than the means in communication and the child is also required to justify his responses.

Some researchers may argue that the types of questions posed in this study are too difficult for 6 year olds. It is suggested however, that the only way in which one can conclude whether these questions are difficult for them or not, is to question them. Their answers will enlighten us as to their language abilities.

There has been a general acceptance that comprehension precedes production in development (although doubt has been thrown on this, for example, R. Clark, 1982). The implication is that we need to know

that the child can comprehend the word pain before we can question him about it. The present approach argues, contrarily, that we can only ascertain what the child knows about pain if we question him about it and that his ideas about pain expand (in both depth and breadth) with development. A frequency count as a baseline measure of whether the child has the word in his vocabulary or not, does not reveal what he knows about pain.

2.4.2(c) Definition tasks and metalinguistic awareness

Word definition is related to the epistemological areas of logic, semantics, concept formation and attainment and is assessed by means of verbal definition, nonsense words, and sorting by perceptual traits (Litowitz, 1977). Many researchers have regarded noun definition as a metalinguistic ability and have studied it in children (for example, Watson and Olson, in press; Wehren, de Lisi and Arnold, 1981). Definitions have been viewed as important for the development of language and cognition since they make words "opaque, autonomous (and) generalizable..." (Watson and Olson, *ibid*, p.36). On the other hand, it has been argued that narrow dictionary definitions limit research on word meaning which includes more than "lists of features" and "category instances" (Livingston, 1982, p.429). Clark 1978a has argued that word-definitions limit our study of word-awareness: definitions provide only an indirect means of assessing word awareness as children often provide common phrases or collocations. However, we do not have to use the word definition in order to elicit a definition and providing common phrases may reveal strategies at different age levels. Furthermore, definitions require prerequisites in that the child has to know what a definition is and what constitutes a good definition.

Watson and Olson (*ibid*, p.17) discuss numerous types of definitions, for example:

i) 'That is an x', x being a lexical term, and the linguistic expression accompanying a gestural indication of the referent. On the basis of the discussion on ostensive definition (section 2.3.1a), this type of definition can be seen to be particularly limited besides being inapplicable to non-ostensive words.

ii) 'A circle is the locus of points equidistant from a given point' where the meaning is specified in the linguistic form.

Studies on word definition of the form 'What is an x' have yielded a diversity of findings. Litowitz (ibid) found that the form of definitions of 4-7 year olds progressed from their drawing on individual, actual experiences to hypothetical experiences and then to definitional forms. Studies dealing with the content of definitions have yielded contrary findings. Wolman and Barker (1965) and Swartz and Hall (1972) found the function of an object to predominate in the definitions of 4-9 year olds, in accordance with findings by Anglin (1977), Litowitz (ibid), Nelson (1978), Norlin (1981) and Wiig (1984). Contrarily, other researchers (for example, Storck and Looft, 1973; Wilson, 1975) found 6 year olds to be capable of providing abstract definitions, the latter being more common than functional definitions. At school age, definitions become more elaborate and superordinate categories appear (Al-Issa, 1969).

Wehren et al (ibid) attempted to overcome what they regarded as methodological problems in the above studies. They ensured that the nouns being tested were present in the children's vocabularies (of questionable value in line with the present orientation) and introduced a more complex scoring system which included functional, relational and concrete categories as well as combinations of these. They found a progression from functional to combinatorial definitions with increasing age leading ultimately (in adulthood) to "complex Aristotelian forms". Concrete definitions were infrequent for all subjects even when the objects to be defined were present. These authors concluded that the younger children lacked the metalinguistic knowledge about what constitutes a noun definition, that is, with age, there is an increasing awareness of what a definition is rather than an increased knowledge of object properties or words. In addition, form and content are regarded as two separate aspects in the development of noun definition with changes in form and content occurring out of phase.

Similarly, Anglin (1978) found that 2-6 year olds and adults displayed marked differences in defining and categorizing four words: animal, food, clothing and bird. He concluded (ibid, p.975) that when making judgements about including certain instances in a particular category,

adults formulate "something like a definition of the category" and use that as a guide. However, children experience difficulty in formulating a general definition of certain verbal concepts for example, 'animal', and their classifications are inconsistent when related to their definitions. All these researchers assessed definitions of concrete common nouns which contrasts with the words used in the present study.

Watson and Olson (ibid) point out that children's definitions are 'incomplete' expressions of meaning, and are often not central to the meaning of the word, for example, a response such as: "it's black" for a definition of "dog". However, this does not reflect the child's ability to use the word in context or to categorize. Meaning is to a large extent specified by the use of the utterance on a particular occasion, context being an important consideration in theories of language use. These authors state that :

What a speaker means by the use of that word on a particular utterance occasion may have varying degrees of congruence with what the word itself means across diverse contexts of use (Watson and Olson, ibid, p.3).

2.4.3 Adult performance as the end-state in the developmental process

Now there is a new conviction that language acquisition studies have significance for the construction of theories of adult language (Macdonald, 1984, p.5)

The link between preschool language abilities and those of adults is still unclear. Researchers have argued for continuity in development of word meaning from childhood to adulthood (for example, Bowerman, 1978). The notion of a "language game" affords an explanatory tool in this regard and would suggest that all words are learned in a variety of "language games", whether words such as **chair** or **pain**. Although additional "language games" are added with development, the process is equivalent for the learning of all words. Assuming that metalinguistic awareness is not a special ability, separate from language use, the school child's intuitions about language may be the bridge from child to adult language use. Older children's greater insight into language may separate them from younger children. As

was mentioned earlier, metalinguistic awareness may provide the only real basis for an adequate explanation of language development during the primary school years (Gleitman, Gleitman and Shipley, 1972; Scholl and Ryan, 1975).

The end-state of the developmental process may be an ideal which evades precise specification but it is important to take it into account since our viewpoint about the end-state limits what we regard as relevant to the developmental progression (Macdonald, 1978). In the present study, adult performance serves as the end-state: adults have maximal competence in using words in a variety of contexts. Word meaning still continues to develop during this period (Mulford, 1977) and the end-state is not, therefore, absolute.

Kessen (1971) argues that in the ultimate developmental theory, we would be capable of predicting developmental changes from our knowledge of cognitive structures and environmental conditions. In this case, the developmental endpoint would not need to be specified because it would be predictable on the basis of what we know of the child's interaction with his environment. Macdonald (ibid) points out that there is evidence that different cultures and classes do not achieve the same developmental endpoints, a consideration which is of importance when analysing data from a particular population group as in the present study.

A summary of the present position, highlighting the major issues considered in this chapter, follows:

TABLE 1 : "Grammar" of words in contrast to previous approaches to word meaning

"Grammar" and the meaning of words	Feature theories	Prototype approaches
1 Meaning is primary	1 Syntax is primary	1 Categorization is primary
2 Concerned with conceptual meaning: the way in which a word adjusts its sense in different co-occurrence relations	2 Concerned with the syntactic relations into which the word can enter	2 Relation between words in the language is not investigated
3 Co-occurrence restrictions are of concern only as they contribute to our understanding of the way in which a word alters its senses in different contexts. Pretend to walk, pretend to be in pain, pretend to be angry cannot be explained by means of co-occurrence constraints. Explained by means of 'propositional attributes' rather than features, for example, you can point to pain behaviour or to a surface manifestation of the pain but not to the pain itself	3 Co-occurrence restrictions are a function of the meaning of words but these restrictions must be explained in terms of abstract semantic features, that is, which features can occur together (Lehrer, 1974). Explained within a syntactic framework (for example, phrase structure rules, Katz, 1972).	3- Relation between words in the language is not investigated

"Grammar" and the meaning of words	Feature theories	Prototype approaches
4 Investigates word meaning within a variety of linguistic contexts	4 Investigates word meaning in varied linguistic contexts but fails to adequately explain the alterations of a word or the developmental progression in the use of words in different senses	4 Investigates word meaning out of linguistic and extralinguistic contexts
5 Emphasis on non-ostensive word meaning. Argues against ostensive definition as playing a primary role in the learning of word meaning	5 Emphasis on substantive word meaning. Cannot account for non-ostensive words. Many assume a referential theory of word meaning which implies that ostensive definition plays a primary role in the learning of word meaning	5 Emphasis on substantive word meaning and on categorization. The role of ostensive definition falls outside the scope of these approaches
6 Fuzzy boundaries between semantically-linked words, for example, pain and ache	6 Fuzzy boundaries between words within a particular lexical field	6 Fuzzy boundaries for category membership based on perceptual criteria
7 "Family resemblances" between the different uses of a particular word, for example, pretend in pretend to walk, pretend to be in pain, and pretend to be angry	7 Extension of the word to objects which bear perceptual or functional similarities	7 "Family resemblances" between members of a category. Members do not hold equal membership
8 Applied to primary school children (6-12 years) and to adults using metalinguistic tasks	8 Applied mainly to preschool children (2-5 years) using comprehension and production tasks	8 Applied to adults modified for application to preschool and school children, using categorization tasks

CHAPTER 3 : METHOD

In this chapter, the design of the study is presented first followed by details of the procedure.

3.1. Design of the study

This is presented together with associated problems and the way in which these problems were overcome.

3.1.1 A cross-sectional design was selected for numerous reasons. Firstly, the aim of this study was to investigate children's understanding and use of words at a particular 'stage' of development. This design enabled a larger group of children over a broader age range to be included at each age level than would have been practically feasible were a longitudinal design adopted.

Secondly, the aim was to investigate commonalities between the individuals' use and understanding of the words selected so as to be able to study the general process of language development during the primary school period. A longitudinal design would highlight the developmental progression for any particular child. Since individual variation between children of the same age group or 'stage' of development was anticipated and confirmed in the pilot study, it was considered advantageous to use a larger sample of subjects within a cross-sectional design so as to reveal more generally based trends.

3.1.2 This study can be viewed from another perspective, namely, as a case study as far as words are concerned rather than in terms of individuals. It involves in-depth study of three non-ostensive words together with their semantically adjacent or linked words, such as **pain, ache and sore; same, similar and different; pretend, know, think and believe.**

Each word was examined from different perspectives, drawing on a large number of tasks. It would appear that this approach enables one to arrive at a comprehensive picture of each word's meaning and of the children's performance at different age levels. This method imposes a

complex structure on the present inquiry which would not exist otherwise. In this case, the findings would be an "artefact" of the procedure adopted (Nesdale and Tunmer; 1984). However, if we accept the "grammar" of words, viewing the word from different perspectives is a necessary procedure for the description of word meaning.

3.1.3 Psycholinguistic researchers and language therapists may argue that we cannot question a child about pain unless we know that he has that word in his repertoire. The present argument, however, is that it is only by questioning the child that we are able to determine firstly, whether he has the word in his repertoire, and secondly, the level at which he has an understanding of that particular word. On the basis of this argument, it was not necessary to check the child's level of comprehension for each of the words being tested prior to introducing the experimental questions, since in this experiment, comprehension of these words constitutes part of the task rather than the pretest. This argument constituted a cornerstone for the design and directed the formulation of the tasks.

3.1.4 Metalinguistic-type questions were asked, that is, the majority of the tasks demanded of the child that he reflect upon the meanings of the words and that he provide justifications for his answers. It is argued that comprehension and production tasks as generally conceived in the literature do not reveal the full extent of the child's knowledge of particular words. It is suggested that the child may be able to use and understand words in different contexts but that his understanding of the word at a 'deeper' level (that is, when questioned further), will reveal differences from adults' responses to the same set of questions.

3.1.5 The approach adopted was that of a flexible semi-structured interview (Seiler and Wannemacher, 1983). This requires that the tester probe and question the child spontaneously. This approach comprises dialogue techniques such as Piagetian techniques which have been drawn on in assessing metalinguistic awareness (Berthoud-Papandropoulou, 1978). Such techniques enable us to question the child further so as to arrive at his understanding. They minimize the influence of variables such as social desirability and demand characteristics (Smith and Miller, 1978), verbal inarticulateness, memory factors and failure to understand the task.

Furthermore, ambiguity or lack of clarity, inherent in everyday language use and resolved only by the context in which communication occurs (Palermo, 1983), is reduced by such an approach since the tester can question the child about his intended meaning.

In a well cited study, Hughes and Grieve (1980) illustrated that children attempt to make sense of bizarre questions. The present study aimed to examine children's convictions about the meanings of selected words rather than their understanding of questions which appear to them as bizarre. The flexible interview enabled the tester to establish the way in which the children understood the questions. If the questions are eliciting answers characterizing a 'stage', then they should not appear bizarre unless the child has either passed through that 'stage' already or has not yet reached it. If these questions are assessing individual differences rather than 'stages', then certain children in any age group may find them bizarre. That children find them bizarre, would, in either of these cases, be enlightening as to their understanding of these words. (This issue is elaborated upon in chapter 5).

Explanations offered by the child allow us to evaluate the reasons for what appear to be 'incorrect' answers (Freeman, Sinha and Stedmon, 1982; Russell, 1982): guessing may be a contributing factor, or if there are commonalities between individuals within a group, it may reflect a developmental level.

Other than the use of an observational approach within a natural environment, test situations always introduce some degree of artificiality. In accordance with the ecological approach to the study of concepts, an attempt was made "to maintain the integrity of variables that matter in natural settings" within a controlled test environment (Neisser, 1984, p.17). Everyday concepts were studied using dialogue techniques which included spontaneous probe questions based on each subject's responses.

3.1.6 A predominantly verbal approach to testing was adopted in this study as has been used in the majority of studies on metalinguistic awareness. Purely nonverbal methods would be inappropriate for a study of word meaning specifically where the words under investigation lack denotata. Non-linguistic demands were reduced with the aid of

pictures and by ensuring that the tasks were short and undemanding with regard to memory (as in the question, 'What is a pain?').

There are inherent problems in all verbal methods since one is using language to assess language, "...a form of theoretical circularity from which there is no departure" (Seiler and Wannemacher, *ibid*, p.329). The difficulty in establishing equivalent reference with children during testing has been mentioned by numerous researchers (for example, Freeman, Sinha and Stedmon, *ibid*; Seiler and Wannemacher, *ibid*). In formulating questions, the researcher uses words and sentences, the meanings of which stem from her own conceptual framework. The subject has to interpret these utterances according to his (the subject's) own concepts. However, it is pre-supposed that subject and investigator share some identical concepts and draw on this knowledge to interpret the questions asked. In the present study, it was this very difference in understanding of concepts that was the focus of the investigation and the linguistic environments in which these words or concepts were assessed, comprised the basis for the study of the "grammar" of these words. Explanations allowed for an examination of qualitative differences within and between age groups.

In the use of verbal tasks, misunderstanding might arise on the part of the questioner or on the part of the child. In conversation, we do not process every word in order to understand the speaker. Rather, we entertain a running hypothesis as to what the speaker intends to convey. Similarly, the tester obtains a first impression as to what the child means during testing. However, when the data is re-examined more analytically, the tester might arrive at a different meaning from her first impression. In the present study, in-depth analysis was favoured. Probing questions resolved any initial misunderstanding that the tester may have had of the child's response. Cross-checking of responses to different questions by any individual subject assisted the tester further in elucidating the child's intended meaning.

When verbal methods are used, a further complication is how to phrase a question so that it is understood by all subjects while at the same time, not altering the question when simplifying it for younger subjects. We also have to guard against questions being absurdly simple for the older children. From the pilot study, a language level

was favoured which tended towards simplicity to ensure that the 6 year olds were able to understand the questions. Certain questions were repeated in different forms to ensure that the formulation of the question was not a factor contributing to the responses obtained. Probe questions were adapted spontaneously to the language level of each individual.

3.2 Implementation of the experimental procedure

A pilot study was carried out on 18 primary school children (6-12 years of age) and on 10 preschool children (4-5 years). The purpose of this pilot study was to determine whether the questions were assessing what they were designed to assess, namely, alterations in meaning when non-ostensive words occur in different contexts; whether metalinguistically phrased questions were suitable for tapping the developmental changes in word meaning with age; and whether all the questions were understood by children of all the age groups. Furthermore, the pilot study was a means of evaluating finer details of method and procedure such as, length of test sessions (so as to eliminate any fatigue factor), phrasing of tasks and selection of particular non-ostensive words. On the basis of the pilot study, the experimental method and procedure were formulated, the details of which are presented below.

3.2.1. Subjects

Sixty-four children, equally represented for sex, were selected as subjects from a middle class, private (fee paying) school, namely King David School, Linksfield. A private school afforded easier access over a long time period than did a government school. Children were selected from one school to afford some degree of uniformity in terms of socio-economic and educational background. This study aims to determine how children of different ages, given their particular educational, social and general experiences, perform on the language tasks with which they are presented. The sample comprises a group of advantaged children and this study is therefore, not normative. Generalization of findings is necessarily restricted further by the small sample size.

Sixteen children were chosen from each of the classes grade 1 (6-7years), standard 1 (8-9 years), standard 3 (10-11 years) and standard 5 (12-13 years). Subjects were randomly selected from class registers by the experimenter after which the headmistress/headmaster from the Junior and Primary sections of the school excluded those children who had particular learning problems, those who had failed a class, and those who came from a dual language background. Children were randomly selected from the full range of classes for each age group so as to guard against a particular approach to teaching being an influencing factor.

The adult subjects, first-year speech therapy and English students at the University of the Witwatersrand, Johannesburg, served to represent the end-state for the development of word meaning on the group of tasks. This was an advantaged group parallel to the sample of children and language had a specific interest for them although they had not yet obtained a specialist level in this regard. A gifted child and a learning disabled child were included to highlight issues which may have been overlooked when assessing the normal children.

The following criteria were drawn on in selecting subjects:

3.2.1(a) Socio-economic background was consistent across the group of subjects in order to maintain some uniformity with regard to the factor of stimulation.

3.2.1(b) Chronological age

Children within the age range extending from 6 through 12 years were selected for the following reasons:

i) Studies of word meaning on children in this age range are relatively few when compared with the study of word meaning in preschool children.

ii) Later developing concepts can be investigated and since these are implicitly more complex, they may help us to understand the relationship between early language development in children and adult word use.

iii) Findings with older children may have important implications for schooling.

iv) The present research was concerned with the development of word meaning subsequent to the acquisition period. As mentioned earlier (chapter 2.4.2), metalinguistic ability is regarded by the present experimenter as a skill which develops during the middle childhood period.

v) The present set of metalinguistic tasks require a certain level of language facility in order to be attempted at all.

3.2.1(c) Intelligence level

Selection of subjects was completely random. The main criterion for selection was that there should be an equal number of males and females in each group and that the children's birthdays should not occur during the course of testing (over about 5-6 months).

IQ scores were available for the 12 year olds only. For each of the 6, 8 and 10 year old groups, different reading tests or English tests were used by the school to establish reading ages. An average score established within a group does not afford comparisons across groups because there is no uniform measure of assessment. IQ tests have been harshly criticized as suitable measures of intelligence (Gardner, 1984; Sternberg, 1984), and whether reading tests are assessing intelligence level, language level, or another ability, is difficult to ascertain.

It was assumed on the basis of random selection, that there was a mixed group of subjects with respect to intelligence level.

3.2.2 Construction of test items

Two hundred and five tasks were formulated on the basis of the pilot study. These comprised short questions, picture tasks and story sequences. In all the tasks, the child was required to give explanations for his initial response. In this way, all the tasks included a metalinguistic component.

Space limitations prevent discussion of all the tasks assessed. So as not to gloss over the major issues by presenting a cursory view of each task, three words, namely, **same**, **pretend** and **pain** together with their related words, were selected for detailed analysis. Tasks for the other words which added either support or criticism to the present

argument, were also included. (See Appendices B-F for the tasks analysed grouped under each word).

It must be emphasized that these particular words and tasks were not selected because they supported the present approach. Rather, these tasks directly assessed the "grammar" and meaning of the words and could be analyzed as they co-occurred in different contexts, for example, **same pain**, and **pretend to be in pain**. The tasks excluded were those that were peripheral to the main issues, for example, 'I have a hurt. Does that sentence sound OK or not?' This includes a syntactical error which relates to "grammar" but it does not assess "grammar" directly.

Each word was assessed from a number of perspectives in tasks which were grouped in the following categories :

i) Spontaneous formulation of sentences with each word: The child was required to formulate three sentences with each word prior to commencement of the session testing that word, to ensure that he could use it in appropriate contexts. The other tasks for that word followed. Compiling a few sentences was favoured above observation in a natural situation since the possibility of obtaining a suitable spontaneous sample of each word from each child was remote even with a scene being set within a spontaneous play situation.

ii) Definition tasks, for example, 'What is a pain?': These tasks examined the "grammar" of words indirectly. If a word is defined in the same way by all subjects or by all subjects of a particular age group, it suggests that the word has a core meaning; if not, it supports the notion of "grammar".

iii) Fuzzy boundary tasks, for example, 'Are a pain and an ache the same or similar or different?': These tasks are definition tasks which focus on a particular contrast in defining a word.

iv) The "grammar" of the word was examined directly in those tasks assessing the word in a diversity of linguist contexts, for example, the word **same** in the contexts of **same ball**, **same pain**, **same dress**, **same apple**.

3.2.3 Instructions

A study of word meaning highlights the importance of the child's

having an understanding of all the words in the instructions for the experimental tasks. The word word was included as a pretest to ensure that subsequent questions in which word appeared in the question itself, would be understood. However, no pretest was included to determine subjects' understanding of the word mean, which, together with numerous other words, also occurs in certain question tasks. One cannot assess understanding of every single word that occurs in the instructions. Furthermore, this becomes a never-ending process since, in checking the child's knowledge of one word (for example, mean) one includes other words whose meaning then has to be assessed.

The preliminary instructions were worded differently for the two youngest versus the oldest groups to ensure that they would be understood (see Appendix A). What is most important is ensuring that both sets of instructions 'gear' the subjects in the same way. Where wording of the question affected the task itself rather than being important only for administration, all subjects received the same set of instructions which afforded standardization.

3.2.4 Administration of tasks

3.2.4(a) Test Environment

Each child was tested individually in a quiet room in the school. The child was seated diagonally across from the experimenter. Each task was written on an index card, the series being placed in front of the experimenter.

Each session was tape recorded, and those children who had not been exposed to a tape recorder previously were encouraged to play with it prior to commencement of the session. Recorded sessions afforded accurate transcriptions of data. This enabled the tester to devote attention to the child and to minimize the formality of the test situation. Brief comments were noted, usually at the end of the session.

A videotape would have been ideal were role play sequences preferred but the relatively few tasks requiring role play did not warrant video equipment. Furthermore, cost and time factors excluded this as a practical option.

The **pretend** tasks which required the child to show or to explain how he would 'pretend to walk' and so on, were generally responded to verbally. Where subjects did prefer to act out, the tester noted down the child's behaviour(s) briefly after each task and immediately after the session, wrote down additional comments.

3.2.4(b) Order of presentation of tasks

Since the effect of one task on another could not be predicted, tasks were presented in random order for all subjects. Initially, a fixed-random order was selected above a variable-random order since the latter added practical complications: transcriptions of data were found to be very time consuming.

From the pilot study, it was found that randomizing all 205 tasks led to fatigue for all groups of subjects because it resulted in their discussing **pain**, then perhaps **belief**, then **anger**, then **pain** again, and so on. Shifting repeatedly from one totally different idea to another was noted to be tiring. In addition, it was found that the tester missed valuable information. When the domain as a whole was assessed for each subject, the tester was able to draw on the child's earlier answers in probing beyond the standard set of questions. This allowed her to obtain a comprehensive picture of each individual child's use and understanding of each word. A fixed-random order across all 205 tasks eliminated this advantage. (Subtasks within any particular item were not split up since this would have required repetition of the instructions for each sub-item). It was also found that randomizing within a particular domain, only, enabled the child to obtain clues from previous questions.

As a compromise, tasks were randomized within sets of domains which then comprised the sessions, namely,

- i) **word and same** tasks
- ii) **pain and anger** tasks
- iii) **dream, thought and daydream** tasks
as well as picture tasks which drew on all the words
- iv) **pretend, think, believe and know** tasks.

Prior to 'shuffling' the index cards containing the tasks for each set of domains, easier tasks for each set were removed. These were placed at the beginning of each set of tasks to ensure that the 6 year olds would be successful initially and therefore, at their ease in attempting subsequent questions. Simpler questions were also included within sessions to prevent the youngest groups from becoming despondent. Since there are no 'correct' answers for the majority of questions, each child was able to answer at his own level of ability, which increased motivation.

Picture tasks were interspersed between purely verbal tasks to increase concentration and interest. Picture displays are ambiguous since they cannot fully capture the dynamic flow of real live events (Hirsch-Pasek, Golinkoff and Gordon, 1984) and young children may have a poor understanding of convention in pictures. Where the pictures were of direct importance in the task itself, possible problems of interpretation were taken into account in analysis (relevant for Q100 only).

3.2.4(c) Pre-testing

At the beginning of the first session, 5-10 minutes were used to relax the child which was found to be particularly important for the 6 year olds. This involved 'chatting' to the child about his family, pets, favourite games and so on.

3.2.4(d) Number and length of sessions

Each child was tested four times, each test session lasting approximately fifteen minutes. Sessions for the 12 year olds tended to extend to twenty or twenty-five minutes at times as their answers were more detailed thereby promoting greater discussion and a larger number of questions.

From the pilot study, it was found that the older children were able to concentrate for longer periods of time and did not display fatigue over this time period. It had been anticipated that the younger two groups would require a greater number of sessions to exclude the factor of fatigue. However, the pilot study demonstrated that because their answers were shorter and because they were not confused by certain questions, additional probe questions were reduced in number

and they displayed no difficulty in concentrating for about fifteen minutes.

The only group within which some members displayed mild fatigue during testing were the 10 year olds. This may have been due to their offering lengthy responses requiring added probe questions as well as being subject to a certain amount of confusion, as were the 12 year olds. However, the 10 year olds may not yet have the ability to concentrate as well as the 12 year olds.

The children in each age group were tested on the tasks for Sessions 1-4 at approximately 4-5 day intervals. The influence of one task on another both across and within sessions could not be controlled but was constant for all the subjects. The 6 year olds (Grade 1) were tested last to ensure them as much time as possible to adjust to the school situation prior to commencing testing.

3.2.4(e) Number of tasks per session

The number of tasks presented per session was decided from the pilot study based on two factors: firstly, keeping particular groups of words together for each session; and secondly, the average time taken to administer a particular set of tasks. Furthermore, Session 1 was shorter than Sessions 2 and 3 since it was preceded by a pretest period. On this basis, 36 tasks were presented in Session 1, 50 tasks in Session 2, 67 tasks in Session 3 and 50 tasks in Session 4.

3.2.4(f) Practice trials

Where required, these were constant for all subjects. As an example, for the pretend tasks, subjects were asked to 'show/tell' me how you would pretend to sleep and pretend to drink, prior to introducing the experimental tasks.

3.2.4(g) Feedback during testing

In the present study, feedback was mainly required to increase motivation. Since the majority of the tasks did not demand a 'correct' answer because any answer was of qualitative interest, positive verbal encouragement, for example, "very good", "a good try", was frequently offered during the course of testing.

3.2.4(h) Learning during testing is a factor which cannot be completely overcome but which has to be partially controlled. In

doing this, the researcher used standard questions derived on the basis of the pilot study together with uniform probes for each question. Beyond this, each child was probed further on the basis of his individual answers which afforded an elucidation of each child's unique understanding of the question: control between subjects was not a priority here. The difficulty lay in encouraging the child to give of his knowledge and ensuring that this was equally encouraged for all subjects.

For each task item, the child was given 'back up' questions and encouragement such as "try", "What do you think?" or a repetition of the question once he had attempted a response. The probes were all open-ended questions and, if necessary, the child was presented with a "forced alternative" (Crystal, Fletcher and Garman, 1976) for example, 'Are a pain and an ache the same or similar or different?'. Certain answers from the pilot study were included as standard probes in the main study.

The responses of children of a certain age group were, at times, suggested to other children in that age group as individual extended probes to check for any uniformity. Six year olds may at times have been 'misled' by the tester, but the majority of children rejected the probe if they did not agree. Certain probes also arose during the main study (for example, probes for Q26, same seat) after testing a certain age group, in this case, the 10 year olds. (The 8 year olds were therefore, not assessed on this probe as they had already been tested). It is important in itself that this probe arose from the responses of 10 year olds rather than 8 year olds.

3.2.4(i) Transcription of data

The children's responses for each question were transcribed verbatim from the tapes as soon after the recording session as possible. Comments from each session were added to the transcriptions. Hesitations by the child were noted with three dots(...) at the beginning of an explanation. Three dots were also used for a long pause during the course of the explanation and a dash (-) for a hesitation. Additional probes, beyond the set questions and standard probes, were transcribed verbatim since analysis of the child's responses was dependent upon the phrasing of the question.

Each question was transcribed on a separate sheet to allow for analysis of responses for each individual child across all tasks, as well as for each task both within and between age groups.

3.2.4(j) Adult subjects

The adult subjects received all tasks exactly as for the children. From the pilot study it was found that the entire set of tasks could be presented in approximately one hour without the interference of fatigue. A short break was introduced between each set of questions (that is, between Session 1 questions and Session 2 questions and so on) but the adults preferred to be tested at a single sitting. They were given instructions as for the oldest groups of children.

The adults were further instructed to be succinct since these questions lend themselves to endless debate, which would have made transcription and analysis impossible. A verbal administration of the tasks (as for the children) was favoured above written group-test administration to ensure that no additional variables would be introduced when comparing adult and child responses.

3.2.5 Reliability measures

Performance variation or individual variation refers to the consistency in one child's performance from one task to another equivalent task or from one test session to another on the same task. Inconsistency may arise because of poor test re-test reliability, the influence of maturational factors from one testing session to the next or because of factors in the test situation, such as fatigue on one occasion, the child's feeling cross and noise.

3.2.5(a) Test-retest reliability

It was important to ascertain whether subjects' responses are indicative of persistent viewpoints held at particular development periods or whether they are fortuitous. In the latter case, a fundamental language phenomenon may be revealed in which performance variation exists apart from any individual child and despite group consistency. This would then indicate the limitations of a case study approach which would result in the richness of the data being lost. The above conclusion necessarily assumes that inconsistency is not

simply an outcome of the test situation and of the nature of the tasks.

A randomly selected sample of the subjects (two from each age group) were retested on a random sample of questions from each domain (twenty five questions in all) to check for consistency of responses over time (see Appendices G and H for questions and a sample of responses). Retesting was carried out five months after initial testing and again two weeks later, to rule out any possibility of maturational factors contributing to changes in performance. There appeared to be some developmental change over the five month period but two weeks was considered to be sufficient in length to eliminate memory recall as a variable while minimizing the influence of developmental factors. Nesdale and Tunmer (ibid) point out that the stability of children's responses on the same task and procedure over a short period has been largely neglected. They add that this limits comparisons between studies using different methods so as to determine which aspects give rise to different levels or types of performance.

The term 'consistency' as used here implies that the two answers were not contradictory and were therefore, compatible. It could not be expected that the two answers would be exactly the same (in wording) given the qualitative nature of the questions and of the responses required. In addition, 'consistency' suggests that the answers were at the same level (for example, both drew on an example as explanation versus a general explanation).

3.2.5(b) Measure of internal consistency

This was built into the test design. Certain questions were repeated with different phrasing in order to evaluate consistency of responses. Since the questions were devised so as to investigate each word from different vantage points, it was possible to establish a trend in the child's responses on different tasks assessing the same word or group of related words. During the course of testing, this was established as a 'measure of internal consistency' of the child's performance on a variety of tasks.

3.2.5(c) Inter-rater reliability

The experimenter served as both tester and rater and no inter-rater reliability measure was established. However, certain tasks were

analysed twice, that is, under the word (for example, **same**) and under the task category (for example, Definition tasks) and scoring was found to be consistent. Assessing each word from a variety of vantage points, building a measure of internal consistency into the test design and establishing test-retest reliability, reduced the personal bias of a single rater. The tester was unaware of which subjects were which in analysis since each was numbered.

The approach to analysis adopted in the chapter which follows was determined by the premisses, method, design and procedure outlined in chapters 2 and 3.

CHAPTER 4 - ANALYSIS

The analysis is organized around the main theme in this study, namely, the "grammar" and meaning of words. This theme will be discussed in light of the findings for the words **same**, **pretend** and **pain**:

4.1 **Same :**

Findings for the words **similar** and **different** are included in relation to the findings for **same**.

4.2 **Pretend :**

Findings for the words **think**, **know** and **believe** are discussed where they throw additional light on the findings for **pretend**.

4.3 **Pain :**

Findings for the words **ache** and **sore** and for the words **anger**, **cross**, **thought**, **dream** and **daydream** are included where they add to the findings for **pain**.

4.4 Findings which reveal the "grammar" of what would appear to be earlier acquired words such as **do**, **feel**, **see** and the interrogative form **where** are analysed briefly as they relate to the words in (4.2) and (4.3) above. This will enable the researcher to determine whether apparently 'simpler' non-ostensive words are learned differently from more 'complex' words or whether they are also subject to the issue of "grammar".

Findings from the adult subjects serve as the end-state of the developmental process and are presented first when discussing each group of words (4.1.1; 4.2.1; 4.3.1). For the children each word is analysed from a variety of tasks, for **same** (4.1); **pretend** (4.2) and **paid** (4.3), namely :

Spontaneous Sentences (4.1.2; 4.2.2; 4.3.2).

Definition tasks (4.1.3; 4.2.3; 4.3.3).

Fuzzy boundary tasks (4.1.4; 4.2.4; 4.3.4)

Tasks assessing the word in a diversity of linguistic contexts, for example same with pain/dress/ball (4.1.5; 4.2.5; 4.3.5). These tasks are formulated both outside of a situational context, for example :

Q45: Can you have the same pain as me?

and within a situational context, for example :

Q60: John is playing with some bricks and a brick falls on his foot. Janet says, 'I've got the same pain ...' (see appendix C).

Definition and fuzzy boundary tasks considered together in relation to tasks assessing the word in a diversity of linguistic contexts. These were included so as to determine whether or not the meanings of two words used separately remain constant when these words co-occur (4.1.6; 4.2.6; 4.3.6).

Summary of findings for each group of words (4.1.7; 4.2.7; 4.3.7).

The analysis which follows includes verbatim transcripts together with figures displaying percentage scores. Figures are included where they illustrate findings more clearly than would a description alone. It will be recognised that for clarity of graphical representation, different scales are used on different figures. Percentage scores afford meaningful comparisons between the children (where n=16 in each age group) and the adults (where n=10). Where one subject in any group was not asked a particular question, the percentage is computed accordingly. However, a response of "don't know" or 'no response' by the subject is included in the figure.

In cases where the responses were dichotomous or mutually exclusive (for example: "yes" or "no"), only one alternative is presented in the figures which follow. The sum of options for any group of subjects is 100%. Where more than two alternatives are offered by subjects within a group or by any individual subject, all the alternatives are represented in the figure. In these cases, the options for that particular group will exceed 100%.

Where percentages for the various criteria mentioned are so small as to not allow trends to be meaningfully interpreted, tables are preferred to figures. Space limitations prevent the inclusion of the complete range of responses for all the subjects but these are available if required.

The present set of tasks are all presented outside of a natural everyday language context. Within the test situation, tasks comprise stories which most closely approximate natural language situations and synthetic tasks such as : 'Can you have my pain?' and 'Does same mean the same thing as similar?' which would never be encountered in any everyday language context.

It is argued that a word always occurs within a context. If we ask: 'Define the word pain', we cannot conclude that we have arrived at the meaning of the word outside of a linguistic context: the word pain occurred within the context of the phrase 'Define the word ...' even though we are concerned with the word as an 'object' in this case. It is argued that a word obtains its meaning from the total sum of contexts in which it occurs. To compare tasks on the basis of whether they are in context or out of context does not yield any useful information in the present framework since it is assumed that the context alters the use of the word which then prevents suitable comparisons from being made.

In the analysis and the discussion, the following abbreviations are used :

S - refers to 'subject' and is applied to the children. Where a number is included (for example, S4) it refers to the number of the subject in order of testing (1-16 for the 8 year olds; 17-32 for the 10 year olds; 33-48 for the 12 year olds and 49-64 for the 6 year olds. The 6 year olds were tested last to allow for a period of adjustment in a new school situation). For ease of description, subjects are referred to as 6, 8, 10 and 12 years of age rather than mentioning the range 6-7, 8-9, 10-11 and 12-13 years.

A - refers to 'adult subject'. Where a number is included (for example, A2) it refers to the number of the subject in order of testing (1-10).

4.1 Same, similar and different

Findings for the adult subjects are presented first after which the responses of the children are analysed.

4.1.1 Findings for adult subjects

The responses of the adult subjects provide the end-state of the developmental process. It is argued from within a developmental psycholinguistic perspective that language is learned in its everyday context which suggests that we should not remove language from the communicative interaction between speakers. However, much of the language learning in school removes language from its context. Children are taught to treat language as an object. Whether we can separate the end-state of acquisition of words from the dynamics of development is questionable. Furthermore, word meaning is regarded as dynamic even in adulthood so the end-state must be viewed as relative rather than absolute.

4.1.1(a) Definition tasks

Ninety percent of the adults used a general explanation in defining **same, similar and different**. They focused on the issue of commonality, likeness or similarity, in their definitions. In this way, they approach a common definition which many researchers may regard as the 'core' of the word's meaning. This approach is questionable for two major reasons:

i) If there were a stable 'core', all the adults would be expected to use the same wording in their explanations since even synonyms have some different contexts of application. If synonyms overlapped entirely in their uses, one of them would be redundant in the language. It can be concluded that if there is a 'core', it is fuzzy. Terms used in the adults' explanations such as "identical", "similar", "something in common", "an exact replica" may all have overlapping uses but clearly, they all have individual uses as well. To equate

these explanations and thereby, to argue for a common 'core' in the meaning of **same**, is to straitjacket the word.

ii) The overlap in the uses of terms drawn on by adults to explain **same** may indicate the stable aspect of the word's meaning over different contexts. However, the shift in emphasis of meaning, that is, the way in which the word alters its sense according to context, is not accounted for by a general definition.

In their responses to the definition tasks, adults provided only a restricted portion of the word's meaning and failed to account for the "grammar" of the word. It must therefore be kept in mind when analysing the children's responses that definitions are not conclusive or all-encompassing.

4.1.1(b) Fuzzy boundary tasks

Individual variation was found for the fuzzy boundary tasks dealing with **same**, **similar** and **different**. Adults provided general explanations as for the definition tasks and displayed a lack of precision in the use of these words. Adults revealed sophisticated confusion on certain tasks which suggests that they may have a greater awareness of fuzzy boundaries than do the children, as will become clear in the sections which follow.

Fuzzy boundaries appear to be inherent in the words themselves. With development, a greater awareness of fuzzy boundaries when required to reflect upon language appears to result in sophisticated confusion. However, these findings were revealed in a particular test situation and caution must therefore, be exercised in generalizing to everyday language situations where fewer doubts about word use arise.

4.1.1(c) Same, similar and different in a diversity of linguistic contexts

The adults recognized a shift in the sense of **same** when applied in different contexts which deviated from the general explanations they offered for the definition and fuzzy boundary tasks. **Same ball** and **same dress** were commonly interpreted in the equivalence sense. **Same apple** was most frequently interpreted in the identity sense in contrast to the children's interpretations. **Same seat** was interpreted in the identity sense as it was by the children. The tasks dealing

with continuity over time were evaluated according to the identity sense and adults disregarded overt changes in drawing their conclusions. For **same pain**, all adults focused on 'type' of pain in their explanations. More importantly, this group of tasks led to sophisticated confusion in certain adults unlike the other **same** tasks. **My anger** or **my pain** was most frequently interpreted by adults as such in contrast to the interpretation of **my anger** as 'same anger' or **my pain** as 'same pain' by the younger children.

Adults recognized ambiguities of sense. They concentrated on less obvious criteria in drawing their conclusions and they frequently drew on more than one criterion or weighed up one criterion against another. They tended to take a variety of possibilities into account in their answers.

For all the tasks, strategies employed by adults in answering the metalinguistic questions posed, included the use of general explanations in defining words; the recognition of ambiguities of sense for the word **same**; an emphasis on less overt criteria in drawing conclusions about similarity; a focus on more than one criterion or on the relationship between one criterion and another in reaching their conclusions; and a weighing up of possibilities by evaluating similarities.

With regard to word meaning, adults displayed a shift in senses according to the words in the linguistic context with which the word **same** co-occurred. The implicit notion of "grammar" appears to hold as part of the end-state in the development of word meaning suggesting that alterations in sense are inherent in the meaning of **same** itself. However, the difficulty we have in separating language use from metalinguistic awareness renders this conclusion tentative (see chapter 5).

4.1.2 Spontaneous sentences

Amongst the 6 year olds, 25% were unable to formulate sentences with **same**. However, they offered sentences with **similar** and **different** and had no difficulty in answering questions which included the word **same**. From 8 years of age, all the children were able to formulate sentences with all three words. Syntactical errors occurred, for example :

"Those dogs are same" (6 years); "It looks similar than your dog" (6 years); "I've got a similar watch like yours" (8 years). These syntactic errors occurred at 10 and 12 years of age as well. These errors are not of major relevance in this study but certain syntactical errors may reveal interesting misconceptions (see chapter 5).

Errors of "grammar", important in this study, also occurred although infrequently (only 1 or 2 examples in each group) as in the following sentence: "Like, someone is different" (6 years) where the child takes no account of the need for a comparison when using the word **different**. Other examples are: "I've got the same teacher" (8 years); "I've got a similar brother to me" (8 years); "This is the same animal" (10 years); "You have similar features" (12 years). When probed with "same as?" all subjects provided a comparison. One learning-disabled child (10 years) produced all her spontaneous sentences in the form: "The similar book (is on the table)" and was unable to add a comparison when probed. Part of the meaning of **similar** is that it implies a comparison between two things both of which have to be made clear to the listener.

A different type of "grammar" error occurred once only (an 8 year old), namely: "I look exactly similar". Besides omitting a comparison, this subject ignored the relative quality of **similar** as well as the implication of preciseness for the word **exact** (this does not bear on the issue of fuzziness for the word **exact**). These two words cannot co-occur for this reason. It would be of interest to assess preschool children's performance on this particular task.

In all groups of subjects, the equivalence sense predominated in the sentences for **same** (all 6 year olds, 75% of 8, 10 and 12 year olds). Certain adults remarked that we can use the word (**same**) in different ways and proceeded to provide an equivalence sense and an identity sense of **same**.

4.1.3 Definition tasks

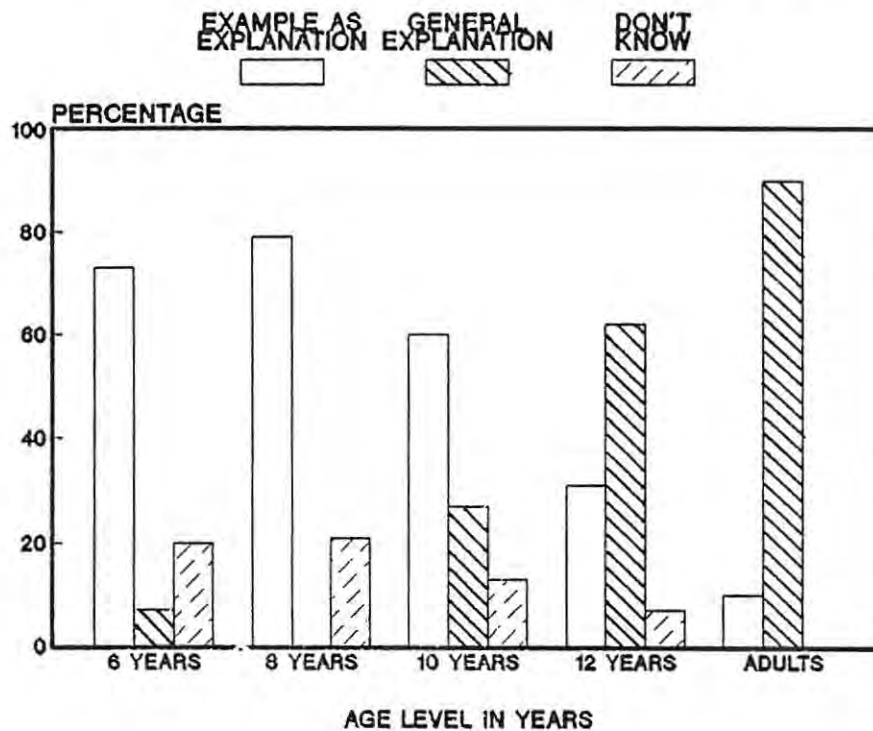
The discussion which follows is presented according to the order of presentation of the definition tasks for the words **same**, **similar** and **different**, namely,

- (a) Q14: When I say things are the same, what do I mean?
- (b) Q18: If I say things are exactly the same, what do I mean?
- (c) Q19: What does similar mean?
- (d) Q24: What does the word different mean?

A summary of the findings for all four tasks follows.

4.1.3(a) Particular strategies were used by children of different age levels in providing definitions. For Q14 (observed in figure 1), more than 60% of 6 year olds (73%), 8 year olds (79%) and 10 year olds (60%) used the word same in the definition itself and they drew on an example as an explanation. There appears to be an overall increase in the percentage of subjects who use a general explanation across age levels and an overall decrease in the percentage of subjects who use an example as an explanation across age levels. At 8 years of age, however, there is an increase in the example as explanation strategy in contrast to the 6 year olds. There is also an overall decrease in the percentage of subjects who "don't know".

FIGURE 1 : STRATEGIES CHOSEN FOR 'SAME PAIN'



The following verbatim transcripts illustrate this example as explanation strategy: "like the same cupboards" (6 years); "that page is the same as that page" (8 years); "the same - same meaning, same in everything" (10 years).

From 10 years of age, 27% of the subjects offered general explanations, for example, "they look alike"; they're identical". General explanations were used by 62% of the 12 year olds and by 90% of the adults, for example: "all things are common" (12 years); "it's an exact replica" (adult).

These strategies were found for Q18, Q19 and Q24 as well. Examples as explanations are :

Q18: "exactly the same shoes" (6 years)

Q19: "it means my thing's similar as yours" (6 years).

Examples of general explanations are :

Q18: "they are identical" (12 years) -

Q19: "they are nearly alike" (10 years)

Q24: "when there's no similarity between them" (adult)

Six year olds tended to include the word **same** in an example for explanation strategy. An example as an explanation using the word being defined, is: "like the same shirts" (6 years). From 8 years of age, children used an example as an explanation without including the word being defined, as in "the dresses are alike" (8 years). General explanations at 6 and 8 years included the word **same**, for example: "they look the same" (6 years); "both have the same things all on them"(6 years). From 10 years, general explanation without including the word **same**, were used, as in, "they look alike"; "they're identical". From 10 years of age there was a move away from an emphasis on concrete, observable characteristics. Furthermore, the use of **same**, if included, was applied in higher level explanations, for example: "They made out of the same things - so, they taste the same or they look the same" (10 years); "same characteristics" (12 years); "they synonyms, like ... they mean the same thing" (12 years).

From 10 years, subjects began to use words other than **same** and offered more general explanations using the word **alike**, as in "they look alike"; "they're identical - exactly alike". General explanations at

12 year and adult levels were of the type: "all things are common" (12 years); "(there's) no difference between them" (12 years); "they're exactly how they were before or how you thought they were..." (12 years); "(they have) equal qualities"; "are identical"; "similar"; "exact replica"; "something in common"; "close in likeness" (adults).

4.1.3(b) For 'If I say that two things are **exactly** the same, what do I mean?' (Q18), the younger subjects (6 and 8 year olds) used either a specific example which moves away from a general explanation or definition or they used the wording from the question, as for Q14 above. Examples of these are: "it means they exactly the same" (6 years); "exactly the same shoes" (6 years). The examples serve as the explanation rather than enhancing it. At 10 years, 50% of the subjects explained in this way whereas 50% began to explain in general terms, using words such as "no difference" (between them). At 12 years of age, the variety of words used in their explanations was broader, namely, "no difference", "identical", "exact". When they included examples in their explanations, the 12 year olds either offered more than one example, as in:

"They like - another tape recorder exactly like this - precisely the same - there's not a - mark, or anything - different, it's exact - like a test is exactly - the Std.5 test is exactly the same as another class - and I get the same test as the person next to me - it's exactly the same",

or they drew on that example to explain further:

"They have no things different about them 'cos the same it could mean, like, ice creams are the 'same' and it could mean it's the same flavour, the same colour, everything".

This subject mentioned that there are "no things different" and then added an example to explain further. The adults used general terms exclusively, drawing on words such as: "identical", "no difference", "no variations", "same in every respect". Only one adult mentioned both the equivalence and the identity senses of same: "it's the same as it was... the equipment could be identical to that used before..."; or "... not the one and the same..."

The 6 year olds focused on the concrete observable differences between items which constitute the examples in their explanation or they explained that "The one looks the same as the other one", the word looks suggesting emphasis on several characteristics. When the older subjects begin to offer more general explanations, they may be aware that their justification is not fully explanatory. They have started to move away from a predominant emphasis on that which is observable. However, as is discussed in relation to all definitions, (chapter 5, section 5.1.2d), the general explanations are limiting and fail to account for the chameleon quality of words.

4.1.3(c) 'What does similar mean?' (Q19) gave rise to answers equivalent to those for Q14 and Q18 above. 6 and 8 year olds included the word similar in their explanations for example, "It means my thing's similar as yours" (6 years); "It means I've got a similar whatever - we've got a similar thing" (8 years). General explanations and 'avoidance' of similar (which may be either deliberate or unintentional) were marked from 10 years of age, as in "nearly the same"; "more or less the same"; "not exactly the same - in a way it's the same"; "they - don't match...they almost match"; "they nearly alike". Stages were not totally discrete similarly to findings for Q14 and Q18, for example, one 6 year old answered that "they nearly the same" similar to 10 year olds' responses.

At 12 years, diversity of general explanations increased as was found for Q14 and Q18, for example, "They are nearly alike"; "...similar is only when they're almost the same, but you can tell the difference" (gifted child); "It's not altogether the same...a little bit the same"; "not exactly the same..."; "Just about the same". Adults added a few additional phrases as in: "...there's a few things in common - not every single thing has to be exactly the same"; "Only some of the factors are alike"; "...almost the same".

It is of interest that similar appeared to be 'easier' to explain than the word same. As an example, one 6 year old gave a general explanation for similar (Q19), "they nearly the same", but was unable to answer Q14 (same) at all. Another 6 year old attempted an explanation for Q19 (similar) "it means that my thing's - similar as yours" but was unable to answer Q14 (same). General explanations for Q19 were also more common at the earlier stages (6 and 8 years) than

for Q14 (same) possibly because the child could draw on the word same in his explanation.

4.1.3(d) For 'What does the word different mean?' (Q24), the findings supported those for Q14 (same), Q18 (exactly the same) and Q19 (similar) in that the 6 and 8 year olds commonly gave examples and used the word different in their explanations. "Not the same" was included from 8 years of age (25%). Adults differed from 12 year olds since their general explanations were more diverse in type, for example, "when there's no similarity between them"; "everything's not common"; "not alike".

4.1.3(e) Summary of definition tasks

The definition tasks for the words same, similar and different revealed :

i) An overall increase from one age group to the next in the use of general explanations with a corresponding decrease in using an example as an explanation.

ii) The use of the word being defined was frequently included in the 'example as explanation' strategy and most commonly avoided (whether deliberately or otherwise) where general explanations were used.

iii) The 8 year olds displayed an increase rather than a decrease in using an example as an explanation when contrasted with the 6 year olds.

iv) There was no single definition of the word that was offered by subjects within any particular age level.

4.1.4 Fuzzy boundary tasks

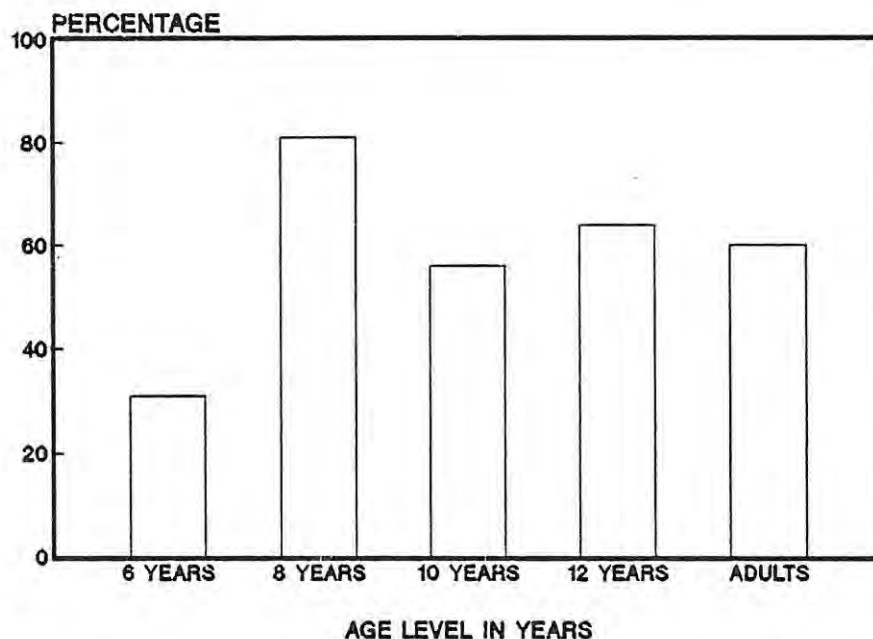
These tasks deal with individual variation in the use of a word that occurs in the application of words by one speaker and between speakers; and the way in which tasks contrasting two words affect the definition of the two words in question, that is, the fuzzy boundaries of the word(s) when contrasted with the other word(s).

4.1.4(a) Individual variation was apparent in the children's responses. There were found to be different levels of justification for the same initial answer. As an example, two children answer

"different" for a particular task but give varied reasons for their answers. Q36 highlights this. In this task the child is presented with a series of apples varying in degrees of colour, size and bruising. Presented with a pair at a time, the child is asked: 'Are these two apples the same/similar/different?' This task is concerned directly with the assessment of fuzzy boundaries between the words **same**, **similar** and **different**. It is a comprehension task rather than a metalinguistic task.

The first two apples presented were exact replicas of each other (the one traced from the other). Answers for all groups of subjects were either "same" or "similar" for this pair, indicating that difficulties arose even on the set that was designed to serve as a baseline for the remaining items. Reasons provided for "similar" varied, as can be seen in figure 2 below. Sixty-nine percent of the 6 year olds favoured an answer of "similar" whereas the 8 year olds (81%), 10 year olds (56%), 12 year olds (64%) and adults (60%) favoured "same". Variation within groups suggests rather that same and similar can be equally applied in this subtask.

FIGURE 2 : % OF SUBJECTS WHO ARGUE THAT THE TWO APPLES ARE THE SAME



One 8 year old answered: "similar - 'cos red and red and the same shape". When probed further with: "Why are they not the same?" he

added "that's a tiny bit smaller". His initial response emphasized the sameness between the two although he used the term "similar". One 12 year old placed the one apple on top of the other to check that the sizes were the same and only then concluded "same" whereas another suggested that they were "similar - well, some people would say they 'the same' but one's more round at the bottom".

Reasons provided by the adults for "similar" related not to the appearance of the apples themselves but to their individual philosophical conceptions about 'sameness'; for example: "similar - they're the same shape and size but two apples" suggesting that one can never have two apples which are the same. This differs from our use of the word same in everyday language where we may refer to two things as "the same" even if they display obvious differences. In everyday language, we do not avoid the word same "because two objects could never be the same" (by the fact of their being two and not one). One adult remarked, "I'd say similar now - usually I'd say same". From her responses to other questions, it was clear that she was separating her idea that two items can never be the same from her use of the word in everyday situations. The fuzziness of words becomes apparent from this group of tasks.

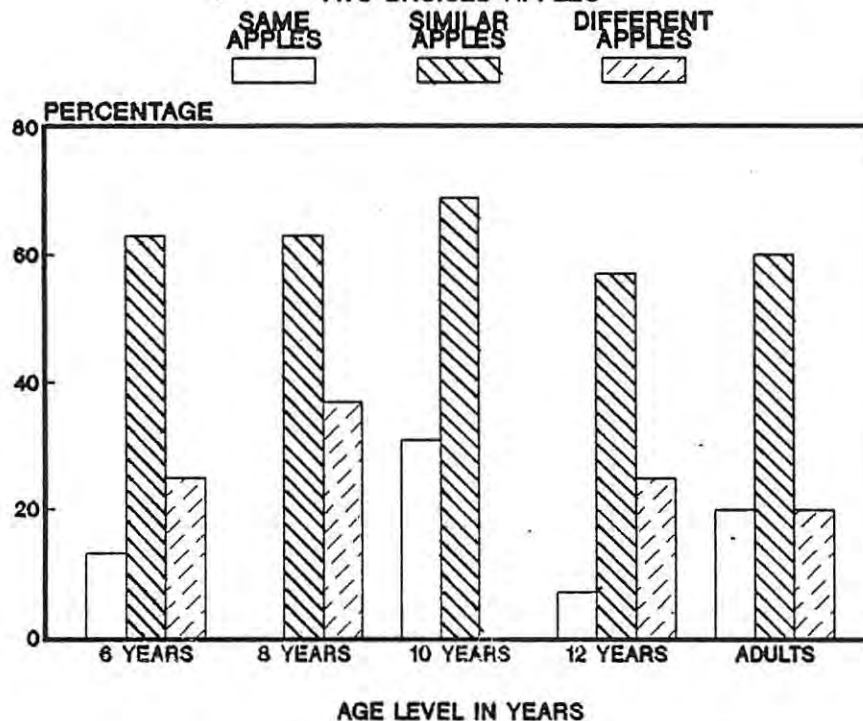
The subsequent sub-items on this task (Q36b,c,d) revealed even greater diversity of opinion both within and between groups of subjects. The two items displaying a bruised apple (Q36b) in relation to an unbruised apple revealed the following findings observed in figure 3 :

No trend was apparent between age groups and variation occurred within groups. "Similar" was favoured by the majority of 6 year olds, 8 year olds, 12 year olds and adults but "different" was the predominant answer for the 10 year olds. It is difficult to explain why this should be the case at 10 years of age. Individual variation appears to explain this finding most clearly.

Ninety five percent of subjects in all groups gave the same answer for both items that is, if they answered "similar" for the one item, in which the apple had a small bruise, they answered "similar" for the second item in which the apple had a larger bruise. Only 5% of all subjects altered the category from "similar" to "different". One subject explained that the one with a larger mark "could be rotten"

whereas the other one's "fresh". The child's understanding of the world comes into play in all these tasks. This was evident from one 6 year old's explanation that these apples are "different", "it's got a bruise - this one came from another tree".

FIGURE 3 : DEGREE OF SIMILARITY BETWEEN THE TWO BRUISED APPLES



What is important in this task is the extent to which different subjects took account of other detailed differences besides the bruise between the apples. Even on these sub-items, there was an occasional reference to size although the bruise was the major difference, for example : "this one's slightly larger and the stem's longer and it's got a bruise". It is suspected that an experimental task will tend to draw one's attention to more detail than would an equivalent situation in everyday circumstances. This problem is inherent in the task itself in that any simulation of a real-life situation will tend to increase awareness to detail. Only naturalistic observation can overcome this and the latter is subject to other limitations with regard to the present aims (discussed in chapter 3).

The subtasks dealing with differences in colour (Q36c) illustrated that justifications may be equivalent although the answer of "same", "similar" or "different" may vary between subjects. As an example,

one child answered: "they the same - except a different colour" concluding that they are "similar" (10 years) whereas another suggested, "similar but one's green and one's red, therefore different" (12 years) and a third child argued that it is "between similar and different - not quite different - the colour's the only thing that's different" (12 years, gifted). Adult responses were equally varied, for example, "similar in that they're apples, but a different colour" and "different in colour but similar in shape - one imagines a green apple to be different".

Individual variation was apparent from the subtask concerned with differences in size (Q36d). The degree of variation between subjects was greater than the degree of commonality and responses could not be grouped. This occurred because subjects (in all groups) did not give the same responses for all three sub-items. For example, one 6 year old regarded the first two sets as "similar" and the final pair as "different", the size difference being too large at this stage. However, others progressed from "same" to "different" after the first pair of items. One adult regarded them all as "similar" and argued that they would only be "different" if one was a pear and the other was an apple whereas an 8 year old answered "the same but one's smaller", progressing to "the same but one's very small". The initial conclusion of "same", "similar" or "different" was important. If the first set was regarded as "different", the final set could not be regarded as the "same" or "similar" only as "different". This factor may have influenced the subsequent responses although a few subjects did alter their initial responses according to their response for the final set.

Individual variation in our use of **same**, **similar** and **different** results in the justifications not necessarily conforming to the initial answer given by different subjects. This may be due to the inherent fuzzy characteristic of language itself. (It must be kept in mind that this is not a negative characteristic and that language is not in need of reform). There appears to be no developmental progression in this regard and it occurs similarly in all groups of subjects.

4.1.4(b) Other examples of individual variation for the words **same**, **similar** and **different** are drawn from a group of tasks. In Q15, 'If I say that I have the same pain as you, what do I mean?', the overlap

between **same** and **similar** was apparent from answers such as "... I don't think you can have the **same** pain - you don't know what the other person's feeling exactly but, from everything they describe, you might feel that you've got **similar** symptoms" (adult) and "That would actually mean **similar** in that case because you don't - have the **same** one as mine - it would be - with the same characteristics".

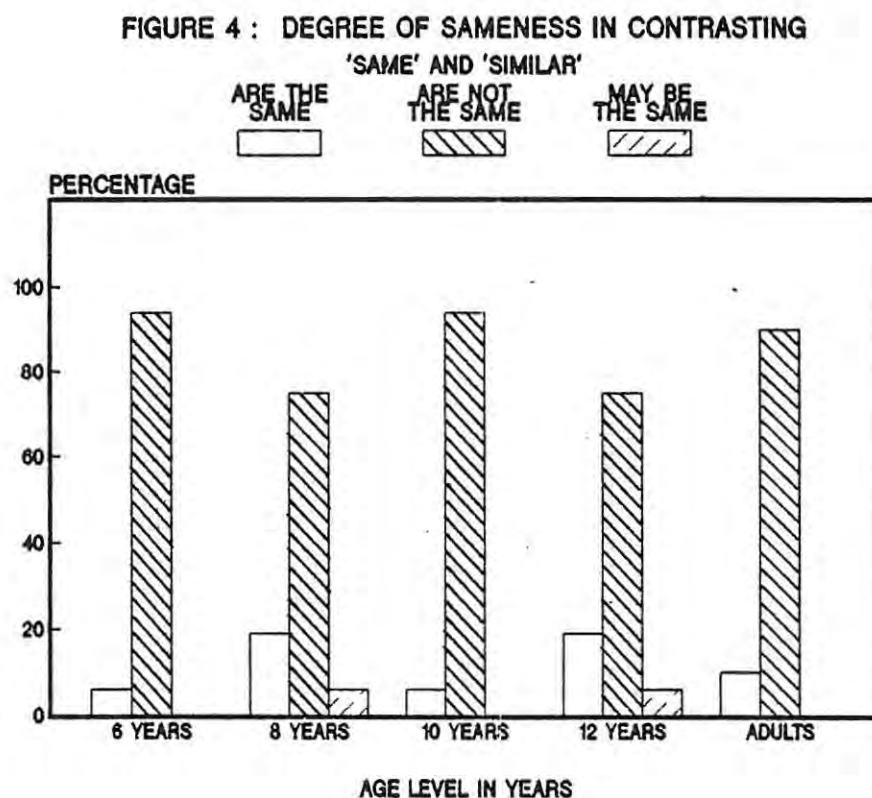
The definitions of **same**, **similar** and **exactly the same** (Q14, Q18 and Q19) throw light on fuzzy boundaries with regard to **same**, **similar** and **different**. As an example, **same** was described in the following way: "Like - you not saying they're identical - you saying like, they very similar to each other" (12 years, Q14), and **similar** (Q19) was explained by the same subject as: "Two things like - they look alike". The latter explanation could be equally appropriate for **same**. This child's answer illustrates the overlap between **same** and **similar** although both explanations were entirely satisfactory. **Similar** (Q19) was at times defined in terms equivalent to those for **same**, as in "It means that things look the same" (8 years); "things are the same" (8 years).

An attempt to view **exactly the same** - **same** - **similar** and **different** along a continuum with no discrete boundaries separating them was suggested by an adult, namely, "I think **similar** is less than the **same**, but it's also less than **exactly the same**". This is only one model for similarity and it is unlikely to be applicable to all uses of these words. The degree of similarity cannot be explicitly determined for our use of each word and there is a great deal of overlap for one subject over a variety of situations as well as between subjects. (This relates to the "grammar" of words, to individual variation and to fuzziness of words). It is important that no clear definition is arrived at, at the adult level. One adult attempted to establish the number of criteria that would need to differ in order for us to draw the conclusion that two items are "similar". This relates to 'sophisticated confusion' (see Chapter 5).

Definition tasks for **same** (Q14) in contrast to **exactly the same** (Q18) are enlightening with regard to fuzzy boundaries. The separation between **same** and **exactly the same** is not discrete. In Q14, some subjects regarded **same** as suggesting that there are no differences at all which is equivalent to **exactly the same**. In Q18 there was greater

consensus in this regard although agreement was still not unanimous. It was also suggested for same that "maybe they could differ in one or two respects" (adult) but this does not provide an adequate solution since it overlaps with similar. Another adult argued that "I'd rather say 'similar' if there are some differences" and equated same with exactly the same.

4.1.4(c) Fuzzy boundaries between same, similar and different were noted from Q20, 'Does same mean the same thing as similar?'. The majority of subjects in all age groups differentiated same and similar as is clear from figure 4 below.



One subject, only, mentioned that same and similar may be the same "in some sentences" but not in others. One adult contrasted same with exactly the same and therefore, regarded same and similar as "the same".

I'd actually put same and similar more together and exactly the same above them - because of the differentiation between same and exactly the same and between same and similar.

The 6 year olds were unable to offer an explanation or argued, for example, "No - 'cos same and similar" with stress on each of the underlined words. Viewed together with the answers on other questions provided by this particular child, it was clear that he was referring to **same** and **similar** being different words as his reason for their being different at the level of meaning. Only 13% of the 8 year olds were able to explain; for example, "No (lengthy pause) ... Like **same** is like exactly the same but **similar** is not exactly the same, it's nearly the same"; "No, 'cos **similar** is a little bit not the same and **same** is exactly like each other". These responses were equivalent to those of 12 year olds and adults for example, "**same**, all the factors are the same and **similar**, there's only some of the factors that are - alike" (adult). There is no apparent trend here.

At least 75% of subjects and at most 94% irrespective of age level argued that **same** and **similar** are "not the same" in meaning. If they were exactly the same, one would be redundant. However, if a word has definite meaning which remains stable when it is used over a diversity of contexts, (revealed by a study of the corpus of language use), then one would expect agreement by all subjects on the above task (Q20). Performance variables cannot be ruled out as an influencing factor but the explanations accompanying answers suggest that **same** and **similar** are not discrete in their application. The ability to draw a clear distinction between **same** and **similar**, does not appear to improve through development. The following responses demonstrate clearly the difficulties and the confusion that arises when one is required to draw some clear division between these words :

"No, **similar** means a bit different, **same** is they are also like, exactly like. It's the same thing - well, it could be a bit different. I don't know - the same - not necessarily, like Grasshopper shoes - they the same like but they a bit different. The same kind of shoe but different colours, or ..." (12 years);

"the relationship is - you get me so confused : **Same** is when there's something which is the same - everything is identical; **similar** is when there's a few things which are - the same (laughs). **Exactly the same** has a more definite - it means more the same than 'the same'" (laughs) (adult).

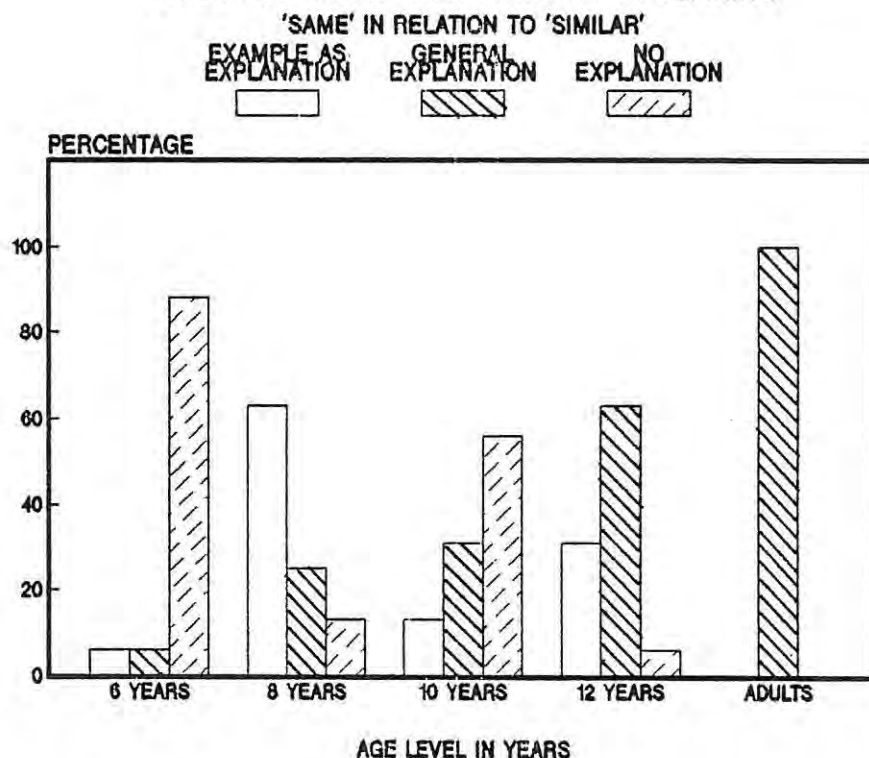
Here the idea of the continuum model is mentioned again.

4.1.4(d) From Q22, 'Does same mean the same thing as different? Why not?', some additional light is thrown indirectly onto the issue of fuzziness. The differences between the words **same** and **different** are greater than the differences between **same** and **similar**. **Same** and **different** may be clearly differentiated in a general question such as Q22. However, within an environmental context as in Q36 (apples differing in size, shape and bruising), the separation between them may become confused at times. Examples of explanations from Q22 are :

"... it doesn't mean the same. Well, **same** might mean like this tape recorder is the same as mine one but you could say that this tape recorder is **different** to mine one - my one is smaller and it has earphones attached to it" (12 years)

"Well, **same** means - well, **different** ...they completely the different thing 'cos **different** means, just say I'm wearing a yellow shirt and you've got a white shirt then it means they different! They completely different, they're not the same. If we wearing the same colour shirt, then it's the same" (12 years).

FIGURE 5 : STRATEGIES CHOSEN FOR DEFINING



In the definition tasks, there is an overall increase in general explanations across age levels. There is an overall decline in the "no explanation" category although this category remains higher than

expected at 10 years of age. A reverse trend occurs at 10 years of age in contrast to the reversal of trend at 8 years of age found for Q14. Trend reversals may reveal apparent regression at a certain period in development (see chapter 5, section 5.2.1).

Examples as explanations were of the type:

"No - 'cos **same** is - like the same things and **different** are if I had a heart dress and you had a flower dress" (6 years)

"No. **Different** is like say you got a red shirt and I got a blue shirt, that's different, and **same** is I got a blue shirt and you also got a blue shirt" (8 years)

"No - 'cos **different** means, say, I've got a red apple and the other boy's got a green apple" (8 years)

It can be observed in Figure 5 that in this definition task, younger children gave examples as an explanation whereas the older children provided general explanations. General explanations were of the type, "same and different are opposites" (from 8 years of age), an answer which does not explain the meaning of each of the words in relation to each other. From 12 years, answers of the following type were offered :

"No - 'cos **different** means that one's not like the other and **same** means they both like each other" (12 years)

"**same** means that they have - things in common but, they could have a few things that are not common and **different** everything - could be - not common, or there could be - yes - everything's not common" (adult).

4.1.4.(e) Summary of fuzzy boundary tasks

i) In the definition tasks, the fuzzy boundary subset of tasks revealed a developmental progression from providing examples as explanations and using the words themselves as central to the explanation, to more general explanations without including the words themselves.

ii) The fuzzy boundary tasks illustrated an understanding that there are no clear demarcations between the words **same** and **similar** and

between the words **similar** and **different** with regard to reference in the external world.

iii) A reversal of trend occurred at 10 years of age on one task (Q22).

iv) There was no single definition of each word in relation to the other that was offered by subjects within a particular age range.

v) The definition and fuzzy boundary tasks together revealed that defining a word in contrast to another word (as in the fuzzy boundary tasks) leads to an emphasis on certain aspects of the word. Degree of similarity was suggested in contrasting **same** and **similar**, **same** and **exactly the same**, **same** and **different**. However, the exact degree of similarity cannot be specified and the emphasis shifts from one contrast to another: for **same** in contrast to **similar** subjects focused on increased similarity for **same**; whereas, for **same** in contrast to **exactly the same**, subjects focused on decreased similarity for **same**.

The younger subjects, by giving an example as an explanation, placed the word in an everyday context. This reveals that they have not yet mastered the definition word game. In so doing, they also emphasize one use of the word, and fail to account for its diverse uses. The general explanations offered at the later stages of development attempt to realize a 'prototypical' or core meaning of the word. This again minimizes the importance of the different uses of a word that occur when it is applied in different linguistic contexts. Where numerous examples are offered as an explanation, the diversity of application is accounted for and the difficulty in defining a central meaning for the word is highlighted.

The most comprehensive answer would combine numerous examples with a general explanation, thereby taking into consideration both diversity of application and consistency in use across situations. If there was no consistency in the use of the word from one situation to the next, word meaning should have no stability. Meaning would shift to such an extent that we would fail to convey what we intend in a proposition. However, this shift in function is only one aspect of a word's meaning and its diversity of application is crucial to our understanding of word meaning. It is argued that this consistency or stability of a

word is not its essence (as used colloquially). "Essence" as applied in the present study includes the stability of a word's meaning as well as the shift in emphasis that occurs when the word is applied over a diversity of contexts. Furthermore, numerous examples together with a general explanation is not sufficient to establish word meaning. Specific 'training' may be required and intuition as well as an entire "form of life" (Wittgenstein; 1953, pt.241) is required.

4.1.5 Same, similar and different in a diversity of linguistic contexts

Same, similar and different are analysed as they occur in the following contexts: (See Appendix C for details)

- a) same dress/shirt (Q21, Q32 a-e) different dress/shirt (Q16)
- b) same apple (Q17, Q31 d,e, Q35)
- c) same chair (Q31 a,b)
- d) same seat (Q26)
- e) same book (Q28, Q29)
- f) same ball (Q33)
- g) same leaf (Q27a); same tadpole/frog (Q27b);
same ship (Q30), all of which deal with continuity over time
- h) same pain (Q15, Q45, Q47, Q48, Q49, Q60) similar pain (Q25)
- i) same dream (Q159)
- j) same anger (Q41)

A summary of findings on all these tasks concludes this section.

4.1.5(a) In Q21 and Q16, tasks for both same dress (shirt) and different dress (shirt) gave rise to a diversity of responses within and between groups of subjects. Many subjects in different age groups regarded same to mean exactly the same, for example:

- "they have to be exact same" (6 years)
- "exactly the same - it's identical" (10 years),

whereas others allowed for some differences, for example:

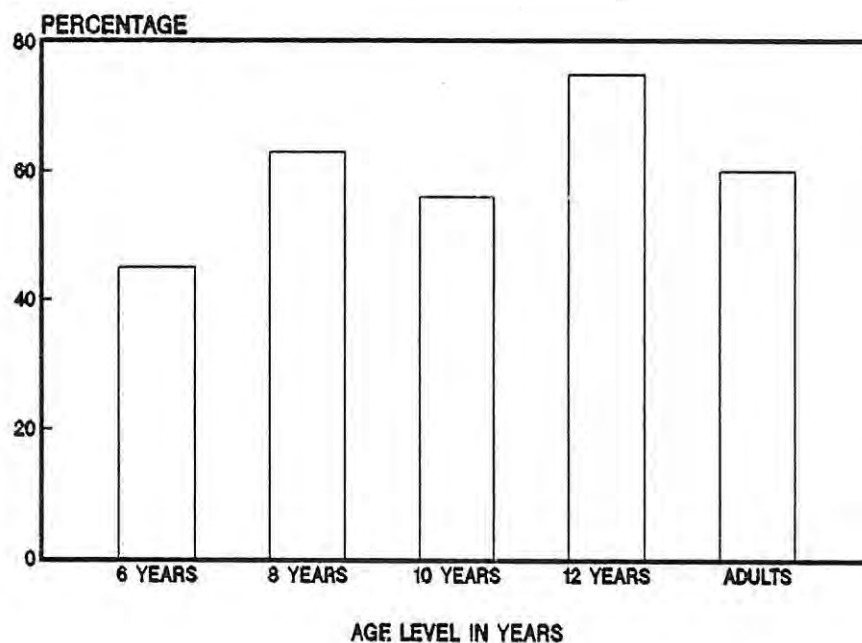
"it might not be exactly the same" (10 years); "they both have things in common but they could have a few differences (adult). This was also found for different dress/shirt (Q16). The plasticity of the

words **same** and **different** as evident from these tasks, adds to the findings for fuzzy boundaries discussed above. All subjects interpreted **same** (in **same dress**, Q21) in the sense of equivalence.

The subtasks in Q32 (a-d) were designed to assess whether certain criteria are more important than others in leading subjects to draw the conclusion that two like articles (dresses in this case) are "the same". The equivalence sense of **same** was accepted as a baseline here. Q32e focused on the equivalence versus the identity sense of **same**.

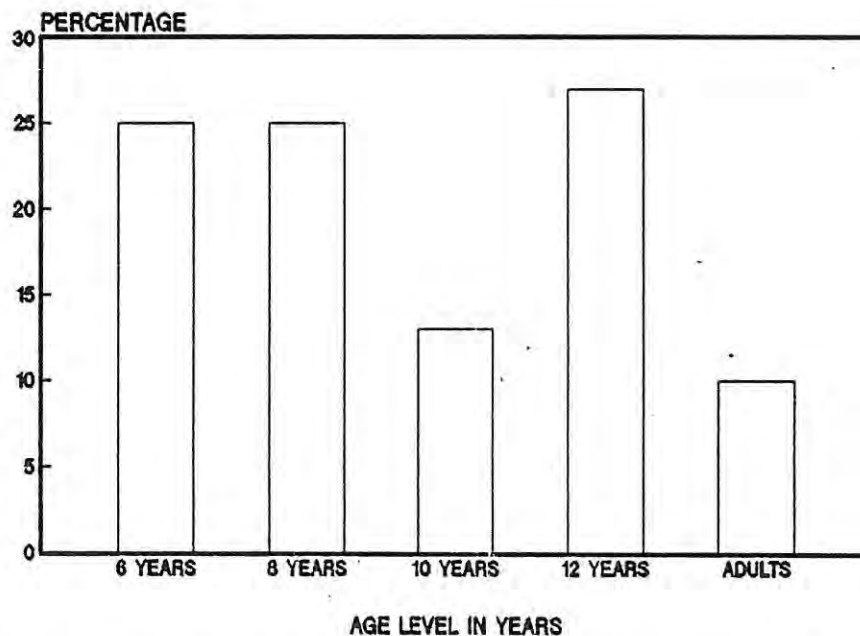
For Q32a at least 56% of 8 year olds (63%), 10 year olds (56%), 12 year olds (75%) and adults (60%), disregarded size as differentiating the two dresses as they did for **same ball** (Q33). These findings are revealed in Figure 6. Subjects concluded that despite a size difference, the two dresses are "the same". The percentage of 6 year olds, who claimed that the dresses were "the same" was the lowest (45%) in contrast to the other groups. This is consistent with the findings for **same book** (where 6 year olds focused on size that is, 'concrete aspects', as a differentiating factor).

FIGURE 6 : DRESSES VARYING IN SIZE ARE THE SAME



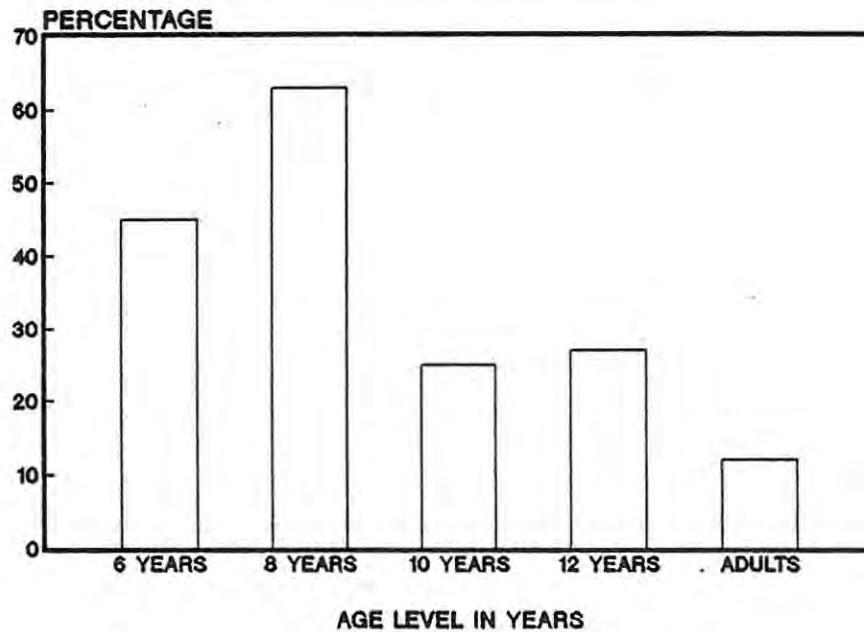
It can be observed in Figure 7 (Q32b) that a colour difference led only 25% of the 6 year olds, 25% of the 8 year olds, 13% of the 10 year olds, 27% of the 12 year olds and 10% of the adults to conclude that the two dresses were "the same". There was very little difference between groups and variation occurred in responses across all subjects.

FIGURE 7 : DRESSES VARYING IN COLOUR ARE THE SAME



Where dresses varied in sleeve length (Q32c), depicted in Figure 8, at most 27% of the 10 year olds, 12 year olds and adults perceived the dresses as "the same" with as many as 45% and 63% of the 6 and 8 year olds respectively, regarding the dresses to be "the same".

**FIGURE 8 : DRESSES VARYING IN SLEEVE-LENGTH
ARE THE SAME**



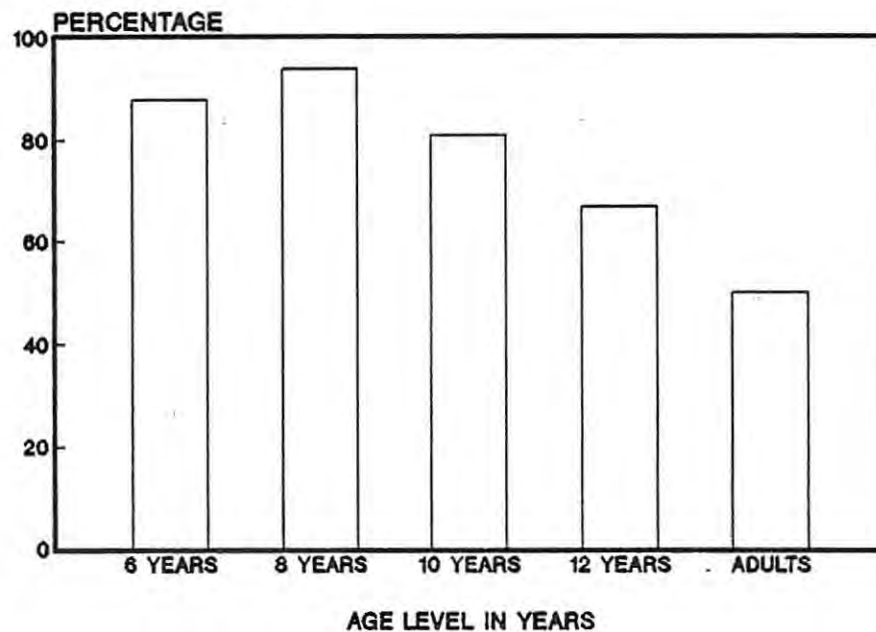
A difference in style yielded a unanimous (100%) conclusion of "different" for all groups.

It can be seen from Figure 9 (Q32e) that at least 67% of the 6 year olds (88%), the 8 year olds (94%), the 10 year olds (81%) and the 12 year olds (67%) concluded that same dress suggests that there are two.

It appears that with increasing age level, there is an overall decrease in the percentage of subjects who claim the dresses are the same.

With regard to dresses, style seems to be the most important criterion for deciding on 'sameness', followed by colour and then size. A minor alteration in style such as sleeve length, (Q32c) did not result in uniformity of responses across groups. In addition, whereas all children answered "different" for Q32d, answers of "similar" and "different" occurred for Q32a, b and c. This finding parallels the findings for same apple to be discussed below.

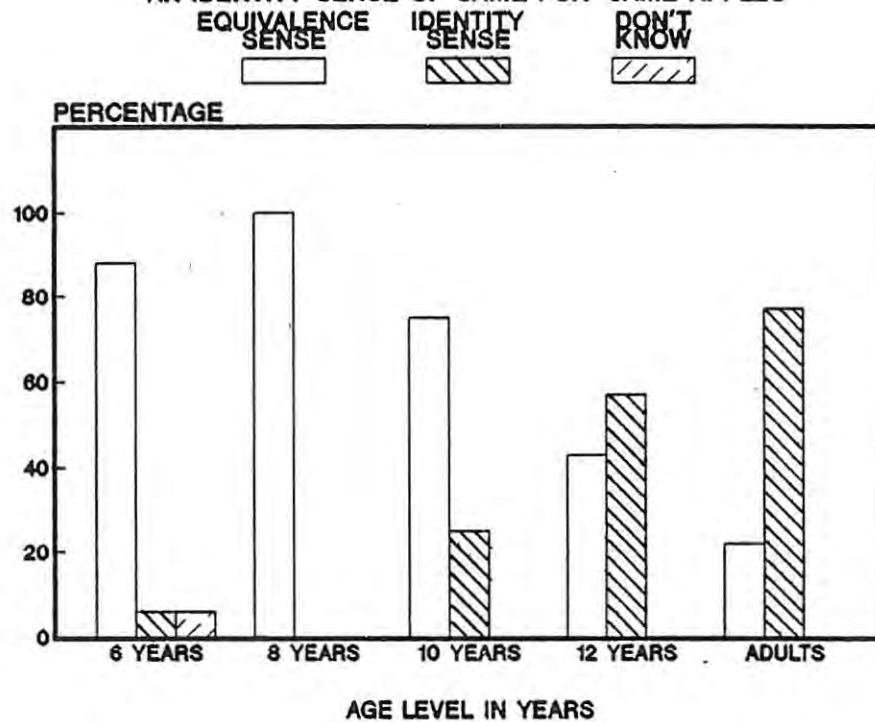
FIGURE 9 : SELECTION OF AN EQUIVALENCE SENSE OF 'SAME' FOR 'SAME DRESSES'



As with Q16 (different dress/shirt) and Q17 (same apple), in Q21: 'When I say that I have the same dress/shirt as you, what do I mean?', 6 and 8 year olds mentioned only one criterion in their explanations whereas older subjects mentioned two criteria. "Same kind of shirts" was emphasized (for example, 12 year gifted child) to provide some qualification for "same shirts". For different dress/shirt (Q16), 6 and 8 year olds also commonly mentioned one criterion, for example: "You'll have a long one, I'll have a short one" (6 years). Older children gave more than one criterion, for example: "It's got a different colour; it's made from a different material; it may have a different pattern on it" (10 years). Different necessarily implies that there must be two dresses so the equivalence sense was not an issue.

4.1.5(b) **Same apple (Q17):** It can be seen in Figure 10 that this task yielded an overall decrease from interpreting the word **same** in the sense of equivalence (88% of 6 year olds; 100% of 8 year olds; 75% of 10 year olds) to that of identity (57% of 12 year olds in contrast to 43% who argued for an equivalence sense; 77% of adults). Conversely, there is an increasing percentage of subjects who favour the identity sense with age in accordance with the findings for same dress (Figure 9).

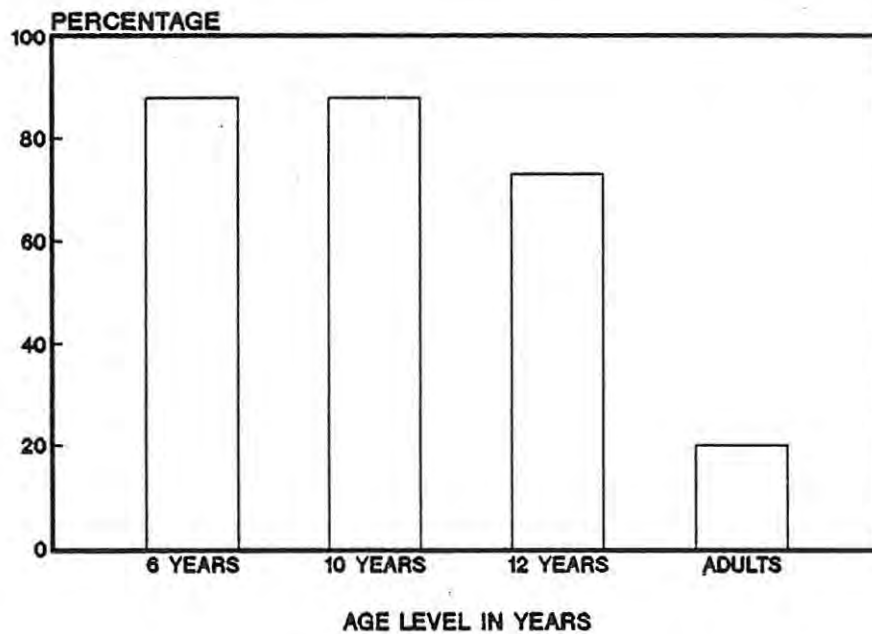
FIGURE 10 : SELECTION OF AN EQUIVALENCE OR AN IDENTITY SENSE OF SAME FOR 'SAME APPLES'



When probed as to whether this task may suggest that there is 'one (apple) that we share', 50% of the 6 year olds accepted this as a possibility as did 75% of the 8 year olds. However, they did not display the conviction of the 12 year olds in this regard as is clear from this 12 year old's answer : "Oh yes! One has one bite and then the other".

Findings for Q35 in which the child is presented with two apple trees on which he must put "the same apples..." (see Appendix C), are revealed in Figure 11. It can be seen that more than 50% of children in the 6, 10 and 12 year old groups interpreted same in the equivalence sense. This was found for 88% of the 6 year olds; 88% of the 10 year olds and 73% of the 12 year olds (8 year olds were not assessed on this task). In contrast, the majority of adults (80%) argued for the identity sense on this task: only 20% argued for the equivalence sense.

**FIGURE 11 : AN EQUIVALENCE SENSE OF 'SAME'
FOR 'SAME APPLE' IN A SITUATIONAL CONTEXT**



The developmental progression from an emphasis on equivalence to that of identity adds support to the findings for same apple (Q17) and same dress (Q21). However, it is important that there is also variation between these tasks with regard to the age at which 50% of the subjects favour the identity sense over the equivalence sense. It should be remembered, however, that the trends may not be absolutely stable because of the small sample sizes at each age level.

When probed as to whether the alternative answer was a possible solution, differences in explanations occurred from one group to another. The 6 year olds offered answers such as : "funny"; or "no, 'cos if you take them off here (the other tree) you can't put them back on". Extralinguistic factors were also drawn on in the explanations of 8 and 10 year olds, for example: "no - 'cos they were on this tree - and if you pull them off ... unless you tie them with string" (10 years). These children failed to recognize that the argument would still hold if one took the apples from the ground and placed them on the one tree.

Only 6% of 10 year olds offered an intralinguistic explanation, for example: "No, 'cos you said, 'same on both'" and this was more common amongst the 12 year olds, for example: "You said the ones that were on

the tree...". In this particular task, an intralinguistic answer does not aid clarification. If the sentence is potentially ambiguous, drawing on one's formulation of the question does not serve to disambiguate it. It illustrates rather how the child has interpreted it. It is clear that the child imposes his own interpretation on his description of the question. No adult supplied an intralinguistic answer.

To preclude **same apples** from being interpreted as 'same number of apples', this task was presented in two parts in the pilot study. The pretest included the request: "I want you to put the same number of apples on this tree as are on this tree". The pretest was eliminated in the main study as it presented no difficulties. In the pilot study the main task also gave rise to a progression from equivalence to identity.

The tasks for **different dress**, **same dress** and **same apple** indicate that the use of the word **same** with **dress/shirt** suggests that these are 'two of a kind' (equivalence sense) whereas **same apple** suggests 'two of a kind' to the younger subjects with a progressive move to concluding that there must be one apple which is shared. The task for **same apple** (Q17) depends more on context for clarification than does Q21 (**same dress**), possibly because **same apple** occurs in both situations equally in everyday language use, whereas **same dress** would be applied more frequently when there are two dresses. One dress which is shared by two children who wear it on different days is not common and would most likely be outside of the experience of middle class children. These tasks become 'ambiguous' only because the extralinguistic context is not specified. What is important, however, is the sense that is favoured by children of different ages and the extent to which they are able to acknowledge that a different sense could apply in certain situations.

4.1.5(c) **Same chair/chairs/apple/apples** (Q31) served as a probe for Q17. This task also yielded a progression from the sense of equivalence to that of identity in interpreting **same chair** and **same apple**. It aimed to determine whether subjects would favour an identity sense rather than an equivalence sense if presented with greater restrictions (for example **same chair** in contrast to **same chairs**). However, the 6 year olds failed to take this into account.

It is of interest that the younger children interpreted **same chair** and **same apple** most frequently in the equivalence sense even though these subtasks were presented together with those for **same chairs** and **same apples**, that is, they offered equivalent answers for both **same apple** and **same apples**. At 8 and 10 years, children tended to correct their answers for **same chair** spontaneously when presented with **same chairs**. The equivalence sense predominated for the 6, 8 and 10 year olds, but at 12 years, 88% of the children differentiated **chair/apple** as suggesting one (identity sense) in contrast to **chairs/apples** which suggest that there are two. This is in accordance with the developmental trend for **same apple** in Q17 and Q35.

4.1.5.(d) **Same seat** (Q26) was interpreted by subjects of all age levels in the identity sense. "I want to sit in the same seat as you" implies that there is one seat being referred to even though the extralinguistic context (that is, a bioscope and numerous empty seats), favoured an equivalence sense. Children offered explanations such as :

- "the other person won't be able to see" (6 years)
- "one seat takes up a whole person (8 years)
- it would be "uncomfortable" (10 years)
- "the seat isn't big enough to seat two people" (10 years)

The word **possible** was introduced by some 12 year olds :

- "it's possible but I don't think they'd let people"
(12 years)

Adults extended beyond the situation and suggested what they thought he could have meant, for example:

- "it's possible that she meant ... in the same row as him"

The 12 year olds and adults were probed further with:

'When she said that, could she have meant "I want to sit next to you" because all the seats look the same?' 88% of the 12 year olds and 88% of the adults argued against this, for example:

- "I don't see the point in saying that 'cos they're all the
same seat(s)" (12 years)
- "... then it would be in the exact same seat" (12 years)

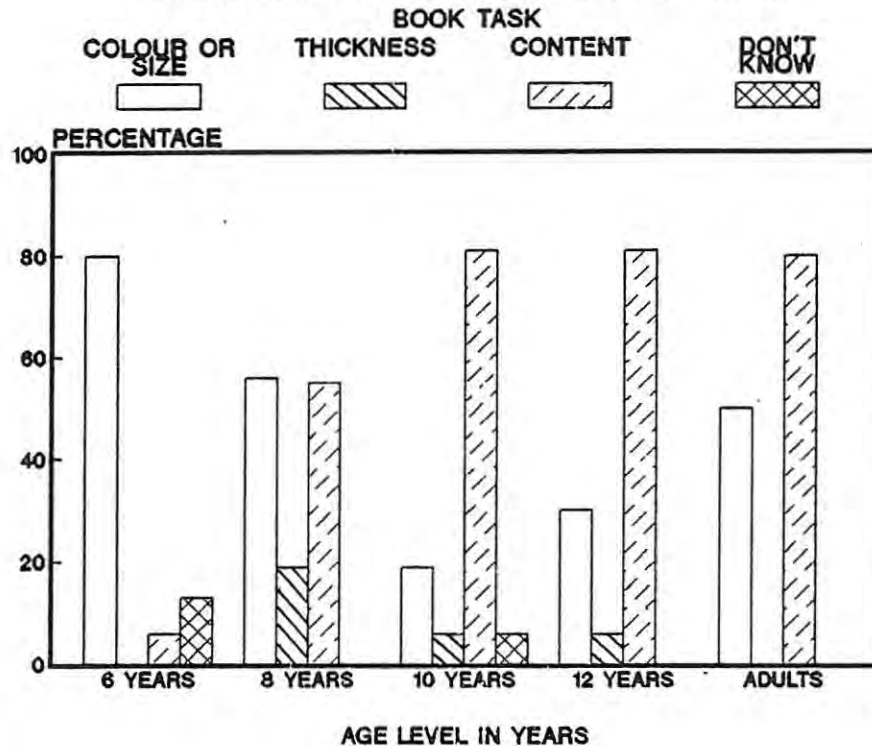
- "... then she would have said: 'sit next to you' or "a similar seat" (adults).

The task **same seat** illustrates precisely the way in which the "grammar" of the word **same** alters in a particular context. In contrast to the emphasis on the identity sense in **same seat**, a sentence about **same dress** phrased comparably, namely, 'I want to wear the same dress as you' would be expected, on the basis of the answers prevalent for **same dress**, to result in the equivalence sense being favoured. It would be interpreted as "I want to wear the same kind of dress as you". It is unlikely that, in this case, the listener would laugh and say "you can't!" except if intending to tease. 'I want to wear your dress' is more likely to suggest the identity sense of the word **same**, that is, 'I want to wear the very dress that you are wearing'.

Although only one dress was presented for Q32c (**same dress**), the subjects extended beyond the picture to give real world understanding to the verbal statement. Contrarily, for Q26 (**same seat**), subjects insisted that **same seat** referred to one seat not to two (even when probed) whereas in Q32e, they argued that it must refer to two dresses. This emphasizes the change in sense of a word when it co-occurs with other words. These tasks also highlight the fuzziness of the words **same**, **similar** and **different** which may have been an influencing factor in the progression from equivalence to identity senses of **same** for tasks 32 a-d. However, uniformity of responses for each of these questions (for example 32d) suggest that this was not the major reason.

4.1.5(e) Same book (Q28 and Q29) did not deal with the senses of equivalence or identity as two books were presented which necessarily implied the equivalence sense. However, it can be observed in Figure 12 that for Q29 the 6 year olds (80%) and the 8 year olds (56%) focused on colour and size (observable criteria). For the 8 year olds, thickness was mentioned more than in the other groups although for only 19% of the subjects. With the 10 year olds, overt characteristics were mentioned far less frequently (19%) relative to content (81%). Content was emphasized similarly by the 12 year olds (81%) and the adults (80%).

FIGURE 12 : CRITERIA SELECTED FOR 'SAME'



From 8 years of age, two criteria were mentioned. In the case of adults, 30% mentioned two criteria which is considerably more than those in other age levels who drew on two criteria. It appears that there is a decreasing trend in mentioning overt characteristics with increasing age up to 12 year olds but not for adults. However, if adults had been asked for one criterion only, the trend may have continued for them as well. In future research, adults should be asked for one criterion only unless one is investigating strategies.

The findings for Q29 support those for other tasks such as *same leaf* (Q27a) and *same tadpole/frog* (Q27b) in which the 6 year olds focused on the concrete aspects of the leaf or amphibian. This elucidates the strategies employed by younger children in contrast to those of older children in solving these types of tasks. In Q36, where the child was presented with two apples of different colours, sizes or degrees of bruising, the experimenter inadvertently placed one apple upside down and one 6 year old answered that they were "similar - 'cos one's upside down". When turned the right way up, he regarded them as "the same".

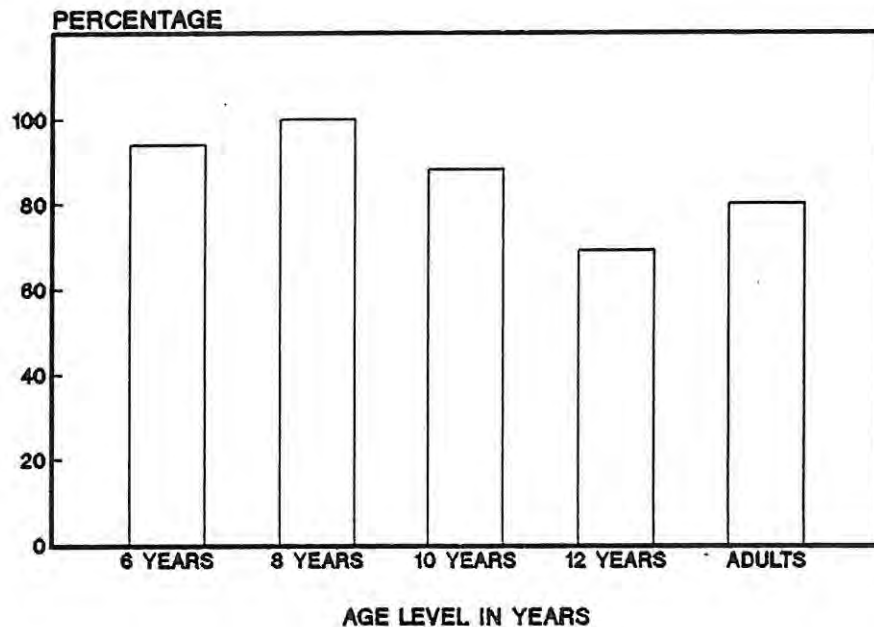
From 8 years of age, children began to mention two criteria in their explanations, for example: "The colour's the same and the letters are

the same" or to identify one criterion relative to another, for example: "'cos his is just got thinner pages than the other one and it's just big and she's got fatter pages and it's small ..." (8 years). The 10 year olds referred to content in terms such as: "... they might be exactly the same reading books inside" whereas at 12 years, children used language such as "same content", "same print", "a smaller edition", "same information".

The focus on overt criteria led some 6 and 8 year olds to refute the evidence in drawing their conclusions. Examples for Q29 are: "... because she thinks hers is bigger than his ... he's wrong..." (6 years); "I don't know 'cos they both are big and red" (6 years); "'cos hers is a little bit bigger than his" ("and he doesn't notice that it's bigger?") "No" (6 years); "Mary was wrong" (8 years). Similarly, for Q28, children argued that it's "because their suitcases are different but their books are the same" (6 years); "'cos she's smaller than he - they've still got the same 'cos hers is small 'cos she's small and he's is big 'cos he's. big" (8 years). Olson and Astington (in press) report similarly, that 7 year olds blame the speaker for a faulty message, for example, "You should have said"

4.1.5(f) For **same ball** (Q33), the majority of subjects in all groups favoured the equivalence sense of **same** as can be seen in Figure 13. Specifically, this sense was emphasized by 94% of the 6 year olds, all the 8 year olds, 88% of the 10 year olds, 69% of the 12 year olds and 80% of the adults.

**FIGURE 13 : AN EQUIVALENCE SENSE OF 'SAME'
FOR 'SAME BALL'**



As for same dress (Q32a), for same ball the majority of subjects stated that a size difference was of no importance in preventing one from concluding that they are "the same". From 12 years of age, the majority of subjects accepted, with probing, that the task was ambiguous and that one ball could have been selected as the answer.

4.1.5(g) Tasks dealing with continuity over time such as Same leaf (Q27a), same tadpole/frog (Q27b) and same ship (Q30) concern same in the sense of identity, that is, 'continuity over time' despite overt changes. The subject must take pragmatic factors from the situation into account beyond the overt appearance of the two entities. For Q27a (same leaf) 88% of the 6 and 8 year olds focused on concrete facets of the situation (as in other tasks such as same book Q28 and Q29) and failed to take aspects of the broader context into account. These children answered that they are "different" (leaves), reasoning that they are of different colours, for example: "no, they different, 'cos this one's brown and this one's green". They took no account of the factor of continuity over time. (This may result from limited real world knowledge or school learning). From 10 years, children began to explain that "they're a different colour but they're the same leaves".

Similarly, for Q27b (same tadpole/frog) in which subjects were required to determine whether one of the tadpoles in the pond "could be the same as the frog" in the picture which follows, all the 6 year olds argued that they are "different" basing their answers on the differences in colour, size and shape, for example: "'cos these are black and that one's green". The majority of 8 year olds (88%) argued that they are "the same", equivalent to answers given by older children, for example: "'cos a tadpole is a baby and when it gets older it becomes a frog". It is possible that this task (Q27b) is 'easier' in that it is equivalent to human growth from baby to adult which is more pertinent to the child's own world of experience than same leaves. For this reason, the 8 year olds may have responded equivalently to the 6 year olds on the same leaf task (Q27a) and equivalently to older children on the same tadpole/frog task (Q27b). Furthermore, continuity over time implies an emphasis on the identity sense, which was found to appear later in children's explanations than the equivalence sense (see tasks on same apple, Q17, Q35). There may be an interaction between the identity sense and the complexity of the task so that an 8 year old is able to apply the identity sense to a task which is 'easier' in relation to his own experiences.

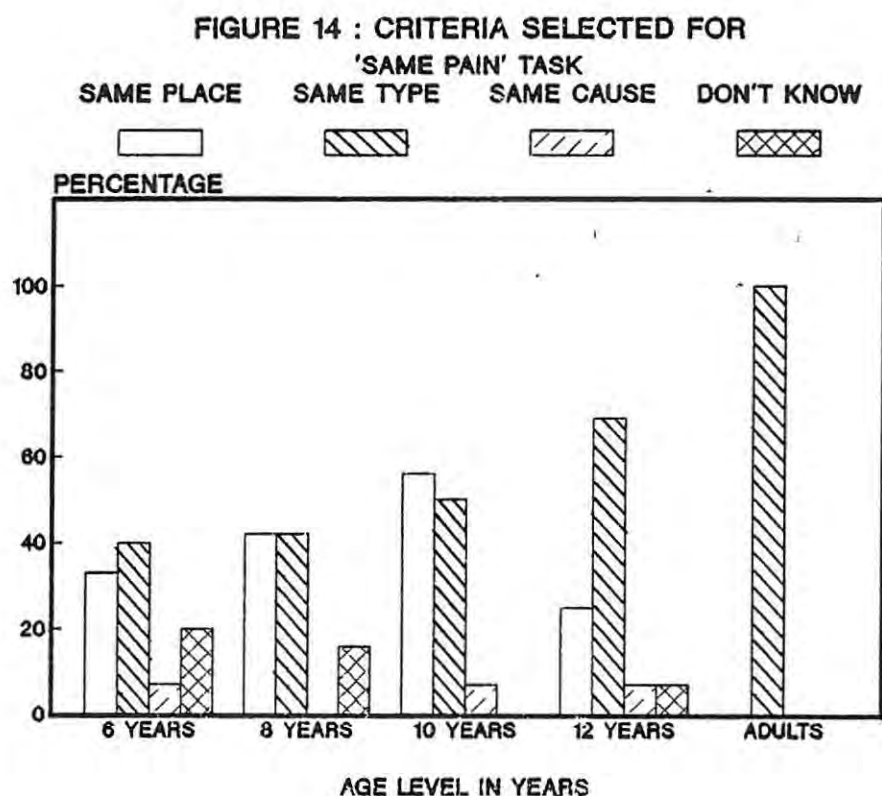
From 10 years of age through the 12 year and adult groups, confusion was apparent in that a few subjects concluded that they are "therefore similar". In these tasks, one cannot average same and different to arrive at similar. Such a conclusion is only possible when reasoning in the following way :

Here are 2 boxes. They are not the same because one is bigger than the other. But, I would not say they are different because it is only colour that is different. So, I think they are similar.

However, in relation to the same leaf tasks, a conclusion of "similar" distorts the description of "same leaves but different in colour". An answer of "similar" indicates a failure on the part of the subject to account for continuity over time. This answer would only be appropriate if, as was the case on a few occasions, the child explained that they are "similar because they look different but that they are still the same leaves". The answer "similar" was offered by subjects of all age groups in the same ship task (Q30) in which a ship

is reconstructed piece by piece after sinking: the subject has to judge whether it is "the same ship as the one that went out to sea in the first place". This task appeared to be more difficult than the same leaf and same tadpole/frog tasks perhaps because it draws on a less natural situation.

4.1.5(h) Same pain : Q15, Q45, Q47, Q48, Q49 and Q60 which deal with same pain, all concern the "grammar" of the word same in relation to the "grammar" of the word pain. 'If I say that I have the same pain as you, what do I mean? (Q15) revealed specific characteristics of the word same as it relates to pain.



It can be seen from Figure 14 that place and type of pain were emphasized equally by the 6 year olds (33% and 40% respectively), the 8 year olds (42% and 42%) and the 10 year olds (56% and 50% respectively). From 12 years of age, type was mentioned predominantly (69% of the subjects as opposed to 25% who emphasized place). This was also found at the adult level where 100% of subjects mentioned type of pain as the important criterion. There is therefore, little discrepancy between the frequency with which type and place was

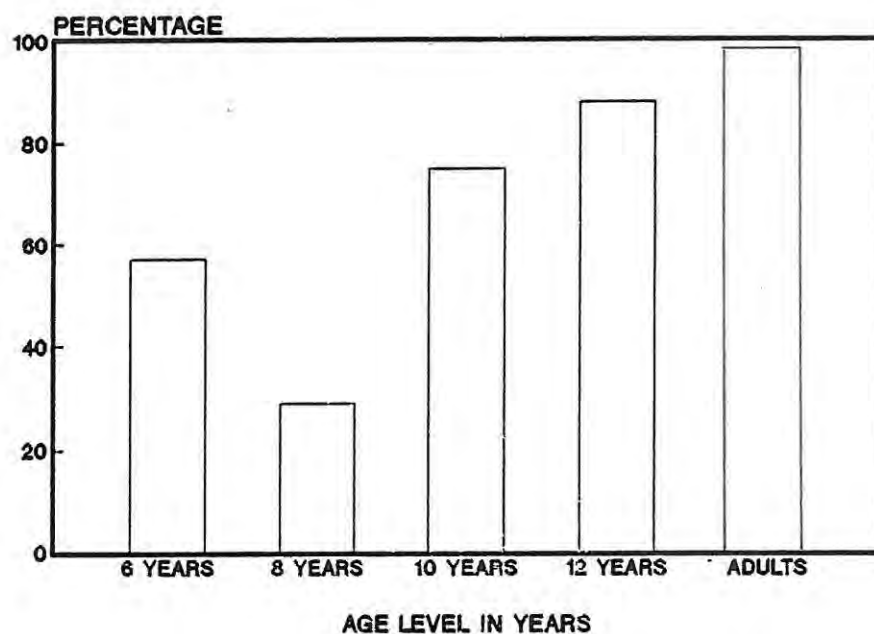
mentioned by the 6, 8 and 10 year olds. However, for the 12 year olds and adults, this is clear. For the adults, only type is mentioned. The argument is based on a small sample size but for the 12 year olds, the number of times type was mentioned relative to place was triple. Place would appear to be a more 'concrete' criterion than type which parallels the findings for same book (Q28, Q29) same leaf (27a) and same tadpole/frog (Q27b).

Strategies used by children in answering this same pain question accorded with those for other same tasks. At 6 years of age, the word same was frequently included in the answer, for example, "Like ... you've got the same pain in your stomach". From 8 years of age, the word same was not used in the explanation or same was applied to a characteristic of pain, for example, same place. These findings confirm those found for the definition tasks.

From 10 years, subjects responded with more than one criterion as is clear from the combined percentage scores which exceed 100% for the 10 year olds and 12 year olds. This finding contrasts to those for the 6 and 8 year olds who offered one criterion only in their explanations. Furthermore, from 10 years of age, children began to offer more general explanations such as "You've got the same feeling as me"; "If I had a stomach ache and you said you also had a stomach ache..."; "we have the same reaction" (12 years). These responses contrast to the 'examples as explanation' strategy drawn on by the 6 and 8 year olds: "Like, say I had a sore tummy, and you've also got one" (6 years); "Say I've got a sore foot and the other boy's got a sore foot" (8 years).

As is clear from Figure 15, Q45 ('Can you have the same pain as me?') yielded consistent answers to Q15, ('If I say that I have the same pain as you, what do I mean?') for 57% of the 6 year olds, 75% of the 10 year olds, 88% of the 12 year olds and 89% of the adults. There was an overall increase in consistency of responses with age. Only at 8 years of age were a high percentage of children (71%) inconsistent in their answers to these two questions. (The issue of consistency and the reverse trend at 8 years are detailed in Chapter 5).

**FIGURE 15 : SUBJECTS DISPLAYING CONSISTENCY
ON THE TWO TASKS FOR 'SAME PAIN'**



It had been assumed that the two questions (Q15 and Q45) were different in that Q15 deals with language or interpersonal communication as all metalinguistic questions do. One would like to ask the subject whether we ever say: 'I have the same pain as you' and if so, what we mean by saying this: On this basis, we would like to arrive at an answer which reflects his natural language use rather than his metalinguistic abilities, but such a task is impossible. So, we are compelled to ask metalinguistic questions in attempting to elucidate how we use language versus what a word means 'independent of language'.

If we contrast Q15, 'If I say I have the same pain as you, what do I mean?' and Q45, 'Can you have the same pain as me?' we find some clarification of this issue. We use the expression "I've got the same pain (as you)" in everyday language and we communicate quite effectively in this regard. Q15 attempts to tap this use. Q45, on the other hand, may lead us to think more deeply about whether we can ever have the same pain as another person (essentially a philosophical question). If this distinction is drawn, then Q15 and Q45 are not equivalent. However, there may be some overlap, for example, Q15 in

an everyday context may lead the listener to ask, "oh, is it throbbing?" or, "is it continuous, mine was ...". The questions themselves pre-suppose a certain 'thinking' about it - in other words, **same** when used with **pain** in everyday language leaves certain questions open (as with **same apple** where the degree of similarity may vary from one situation to the next, but we may still use the word **same**). However, with **same apple**, the similarities and differences are overtly apparent which cannot be said for **pain**). It suggests that we may think further about it in everyday communication though not 'as deeply' as is suggested to be the case in Q45.

When an adult answers the following question (Q60), 'Janet said: "I've got the same pain as you"' is that OK?' by saying "No, 'cos Janet doesn't know what pain John's got", this answer suggests confusion. The adult attempts to give **same** a restricted meaning of equivalence whereas, in this context of **same pain** which we use in everyday conversation, for example 'I've got the same pain as you', we don't have to know exactly what pain the other person has. **Same** takes on a different sense in this situation and the adult has ignored this sense of the word. The adult has discounted that **pain** has a particular effect on **same**, resulting in a particular use of **same** in this situation. The "grammar" of the word **same** as it relates to the "grammar" of the word **pain** has been disregarded.

The younger children (6 and 8 years) tend to place the word back within the context of everyday language use, and therefore, offer equivalent answers for these two questions (Q15 and Q45). Generally, their answers take the form of examples. However, older children and adults tended to focus on the use of **same** in its more common or frequent application in everyday language, that is, they removed **same** from its specific linguistic context of **same pain**. We cannot conclude that they are 'confused' per se in this case, because the phrasing of the question tempts them into removing themselves from everyday language use. However, what is important is that this question does not lead younger children to answer in the same way as do adults. What the older subjects display is sophisticated confusion: at a certain stage in development, certain questions will tend to lead them away from natural language use (see chapter 5).

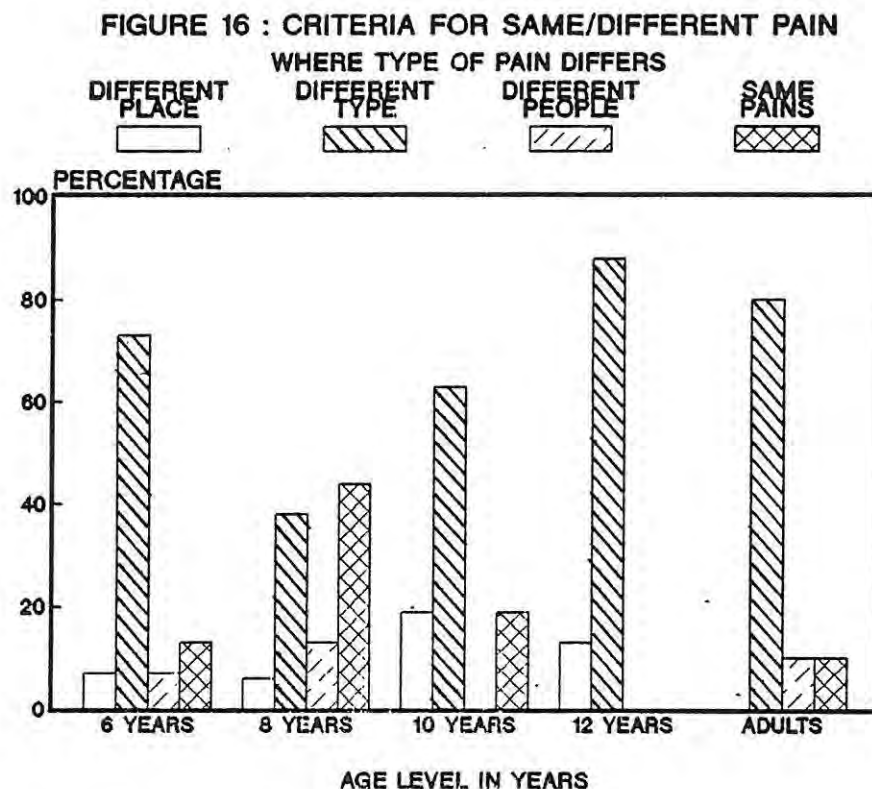
The younger children place the word into a natural language context which gives the word as precise a meaning as it needs in that context but, they also have a restricted use of each word, for example, *same* and *pain*, perhaps disregarding the unique senses of these words as revealed in this specific combination. The adults, on the other hand, answer out of context which, at times, leads to sophisticated confusion. They have still taken account of the "grammar" of *same* in relation to the "grammar" of *pain* (see chapter 5).

Q47, 'When you fall, do you always have the same pain or is it sometimes different?', throws additional light on the answers for Q15. At 6 years of age, *place* was emphasized by 56% of the subjects, both by giving specific examples as in "sometimes I fall here and sometimes I fall here" (indicated with pointing) and by giving more general explanations as in "cos sometimes you hurt yourself in different places". Only 38% of the 6 year olds mentioned *type* and 19% mentioned *intensity*, for example: "like, if I fell harder".

By 10 years, *type*, *intensity* and *place*, were equally predominant in explanations and more than one was, at times, mentioned by a subject. The 12 year olds emphasized that it "depends where you fall". This was not probed further at the time, so the intention, as referring to the ground surface or to the specific part of the body, was unclear although 'part of the body' was considered to be suggested in line with the adults. All the adults mentioned both "how hard" one falls and "where you hurt yourself". Additional criteria such as height and specific surface were mentioned by one adult subject only. There was a gradual progression in the number and specific criteria drawn on in explaining the answers.

For Q48, in which one boy is being hit and the other has toothache, the common answer for all groups of subjects except the 8 year olds, was that the pains are different as they are of a different *type* (revealed in Figure 16). Explanations were, for example, "'cos he's got toothache and he's getting smacked" (6 years); "'cos the pain is in the tooth and he's got pain in his face" (10 years); "two different kinds of pain" (12 years). This was the explanation given by 73% of the 6 year olds, 63% of the 10 year olds, 88% of the 12 year olds and 80% of the adults. Only 38% of the 8 year olds argued that they were

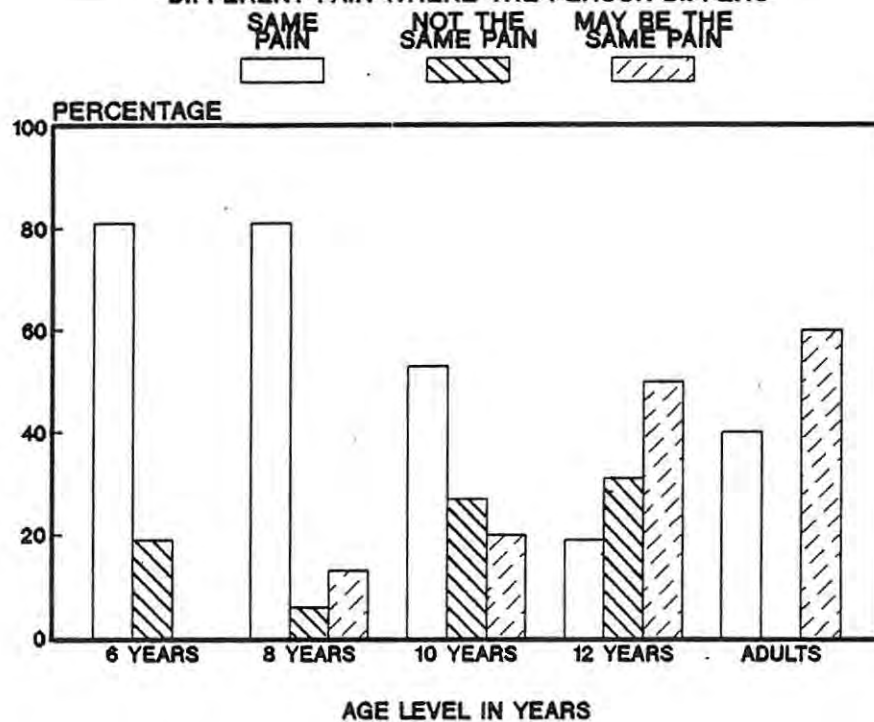
of different types. The 8 year olds answered predominantly (44%) that the two pains were "the same".



In Q49, where a girl and a boy both have toothache, it can be observed (Figure 17) that 81% of the 6 year olds, 81% of the 8 year olds and 53% of the 10 year olds argued that the pains are "the same", both being toothache.

With additional probing, 50% of the 6 year olds and 63% of the 8 year olds argued that the pain of the boy and the girl would be different if it was on different sides of the mouth. The 12 year olds (50%) and adults (60%) predominantly concluded that the pains "may be the same" and proposed possibilities, for example: "'cos they both holding the same side so it's probably three quarters the same pain..." (12 years); "it depends where..." (12 years); "it depends on the amount of the toothache or where the toothache is" (adult). There was a definite increase in the use of the word *maybe* with increasing age. Place was mentioned predominantly as a criterion by means of which one could determine whether the two pains are the same or not.

**FIGURE 17 : DEGREES OF SIMILARITY FOR SAME/
DIFFERENT PAIN WHERE THE PERSON DIFFERS**



In contrast to Q48 where the type of pain was emphasized as important in determining whether they were the same or not, in Q49, the predominant answer was that they are "the same" but that the place in which pain is experienced is an important criterion in drawing conclusions. In Q48, differences between the two pictures were focused on whereas in Q49, the 6 to 10 year olds focused on similarities between the two pictures. The 12 year olds and adults weighed up the similarities against the differences and were, therefore, most commonly tentative in their answers.

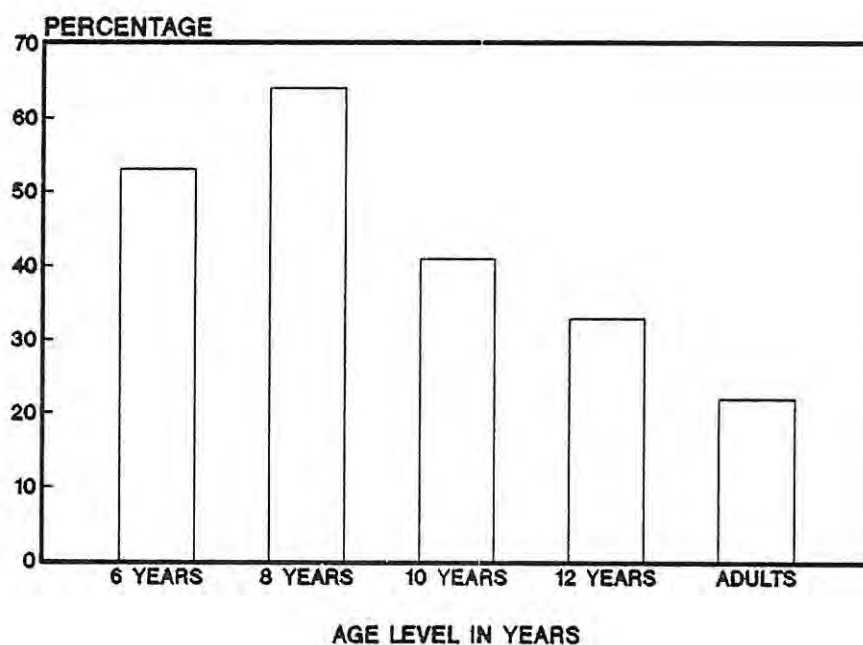
In Q60 (story task for same pain), the common response for all groups of subjects (62% of 6 year olds and 100% of subjects in the other groups) was that the story "sounds funny" (6 years); that Janet does not know what pain John has so she would not have the same pain. At 12 year old and adult levels, 'sophisticated confusion' was evident as for other same pain tasks (see chapter 5, section 5.2.1b). These subjects failed to take into account that we use the expression 'same pain' in everyday language even though we can never be certain that our pain is the same as that of another person. This is sophisticated confusion because, although we use the phrase same pain in everyday standard English, the word pain is assimilated to the words for physical objects to the extent that our use of same pain seems

impossible (see chapter 5). Yet on other tasks (for example same ball and same dress), they were prepared to disregard certain differences such as that of size and still conclude that the two (balls or dresses) were "the same". One 6 year old (Q49) also rejected the use of same pain "'cos you don't know if I've ever got the same pain as you!"

What is most important is that same pain tasks led to 'sophisticated confusion' at times whereas tasks such as same ball/dress did not. This reveals clearly the "grammar" of the word same and suggests that it may be learned differently in different linguistic contexts, since it requires very different uses in different contexts. (This issue of 'sophisticated confusion' is detailed in chapter 5).

'Can you have my pain?' (Q76) was interpreted by many subjects as 'Can you have the same pain as me?' (Q45) as can be seen in Figure 18. There is a gradual progression from interpreting 'my pain' as 'the same pain'. This occurred in 53% of 6 year olds and 64% of 8 year olds. From 10 years of age this task was most commonly interpreted as 'my pain' and a negative answer was given. (This occurred for 59% of 10 year olds, 67% of 12 year olds and 78% of adults).

**FIGURE 18 : INTERPRETATION OF 'MY PAIN'
AS 'THE SAME PAIN'**



Those who interpreted the question as 'my pain' answered "no" and gave explanations such as "'cos I - I can't feel your pain" (6 years); "I can only have my pain" (6 years). At 10 years, children gave explanations such as: "... you can't have that person's pain"; "no, you've got your pain and I've got my pain - we can have a similar pain" or at adult level "no, because it's yours" (laughs). A question such as: 'Can you have my book?' could give rise to similar explanations such as, "no, because it's yours". However, answers such as "no, 'cos I can't feel your book" or "you can't have that person's book - take it from them", would not be appropriate with regard to **same book**.

Q60, the story task for **same pain** contrasted 'same pain' with 'my/your pain'. Six, 8 and 10 year olds focused on 'same pain', providing answers such as, "... she can't have the same pain .. she's got to be him" (8 years); "no, 'cos a brick hasn't fallen on both of their foots" (8 years); "I don't think they could have the same pain... you couldn't tell if they had the same pain..." (10 years, an example of sophisticated confusion, see chapter 5); "she doesn't know how his pain is" (10 years); "how could she have the same pain... 'cos she can't catch a pain" (10 years).

At 12 years of age, children contrasted 'same pain' and 'my/your pain'. This is clear in the following examples: "no, 'cos she can't have his pain, she could have the same pain as him"; "she doesn't know what kind of pain he's got" but she can have "sort of the same pain"; "you can say 'I've got the same pain as you', you can't say 'I've got your pain'". Adults argued that "same pain" is acceptable though "she's probably got some psycholological problem if she's got the same pain and nothing actually happened". "I've got your pain" they regarded as incorrect. Twenty five percent of the adults argued that "it may be similar, it's not the same". This relates to the issue of 'sophisticated confusion' (see chapter 5) as does the argument of a 12 year old, gifted child that "'I've got the same pain as you' would mean that they sharing the pain...it's like, a pain is a thing, a noun, it's been split in half - half has been given to him and half has been given to her". He agreed that this would be equivalent to cutting an apple in half and sharing it when you have the "same

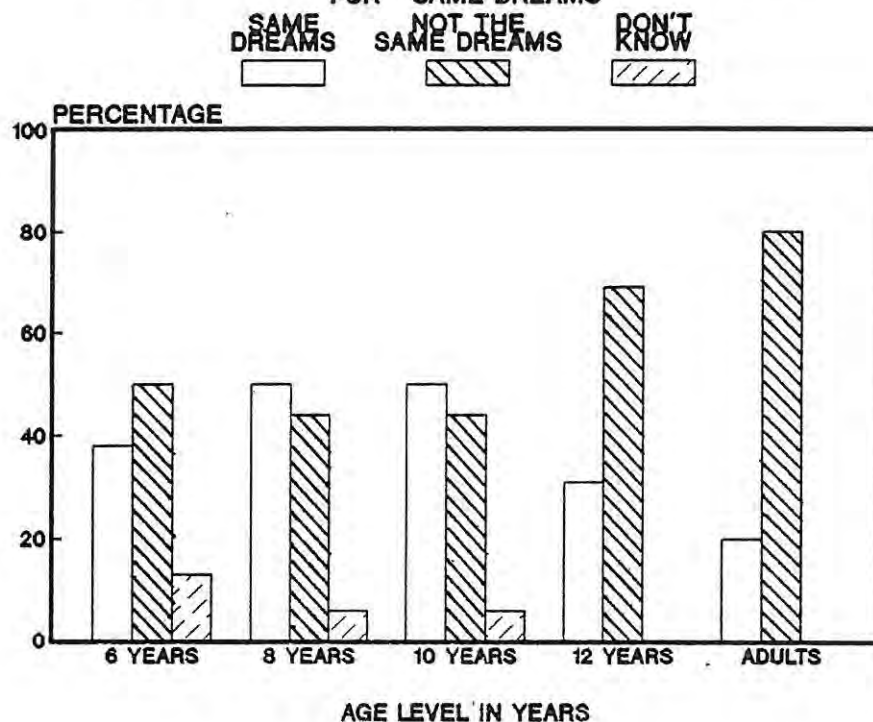
apple". His answers for other same pain tasks (Q15, Q45) were consistent with this.

'If I say that I have a similar pain to you, what do I mean?' (Q25), gave rise to explanations which conform to those for same pain (for example, Q15). In Q15, place and type were emphasized as being "the same", type and place were mentioned as differing in some way, for example: "you've got a cough and I've got a cold" (6 years, type); "Like, mine's got a funny feeling and yours is just very sore" (8 years, type), with type becoming predominant from 10 years of age. In Q25, type and place cannot be separated, for example, "Like, you've got a sore tummy and I've got a headache" (6 years). Intensity was also mentioned, for example, "maybe one of them just hurts a little more than the other" (8 years); "It's not the same, not as sore as my pain, but it's nearly as sore..." (10 years).

At 10 years, subjects explained what similar means; for example, "they not exactly the same" and then applied this explanation specifically to pain, for example, "your cut could have been deeper". From 12 years of age, general explanations were favoured above examples as explanations, as in, "You think we have a similar pain 'cos we suffering similar things".

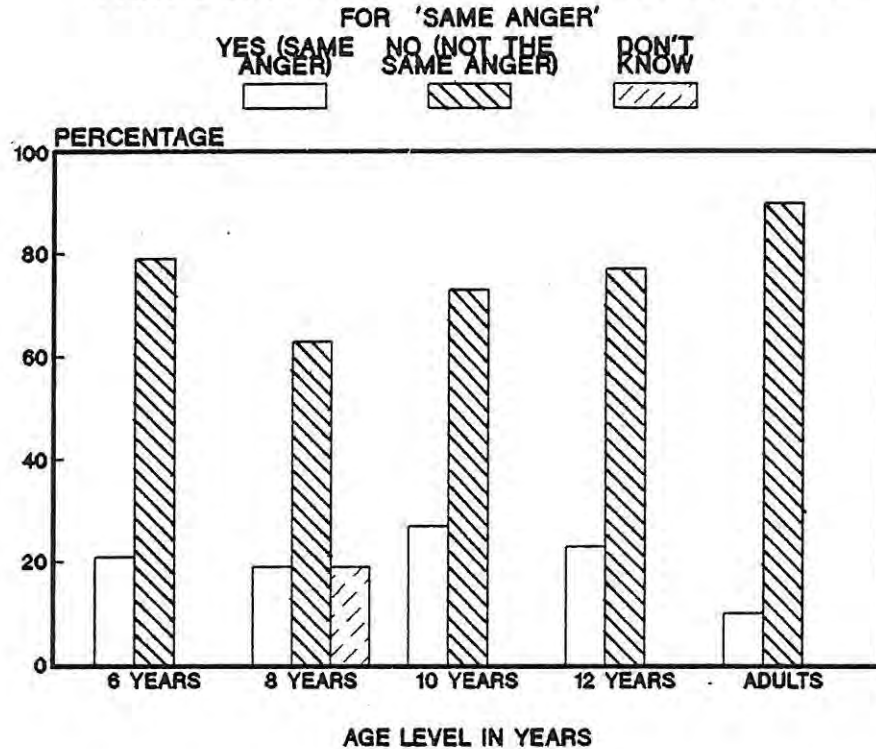
4.1.5(i) For Q159, 'Can you have the same dreams as me?' subjects beyond 10 years of age generally responded "no" (69% of 12 year olds and 80% of adults respectively). This can be seen in Figure 19. At 6 years, 8 years and 10 years, there is little difference between the percentage of subjects who agree and disagree within each age group. However, for the 12 year olds and the adults, there are at least twice the number of "no" responses than "yes" responses. Marked differences occur for children up to 10 years in contrast to those of 12 years. Numerous subjects (44% of 8 year olds and 44% of 10 year olds) even at 6 years (50%) were aware that same takes on a specific use when applied to dream. If they accepted that one could have the same dreams as another person, they suggested in their explanations that same could not mean 'exactly the same' when it is applied to dreams, for example: "yes... well, not exactly the same ... similar to me" (8 years); "No, we can dream about the same things but they can't be exactly the same (10 years).

**FIGURE 19 : POSITIVE AND NEGATIVE RESPONSES
FOR 'SAME DREAMS'**



4.1.5(j) For Q41 (Can you have my anger?), there is very little difference between the subjects at the different age levels. From Figure 20, it can be observed that 21% of the 6 year olds, 19% of the 8 year olds, 27% of the 10 year olds, 33% of the 12 year olds and 10% of the adults, interpreted the question as 'Can you have the same anger as me?' (Q60, Q76). However, at the 8 year level, there are the least "no" responses which may be accounted for by their being the only group who respond "don't know" (19%). These latter responses may or may not become "no" responses at the next age level. Examples of explanations are "'cos you cross and then I'm cross" (6 years); "yes, 'cos you could both be angry with the same person and you can both be doing the same things, then you'll both be the same angry" (10 years); "if we both got cross at the same thing..." (10 years).

FIGURE 20 : POSITIVE AND NEGATIVE RESPONSES



Same anger as with same dreams (Q159) suggests an equivalence sense of same: no subject suggested that there could be one dream or one anger that is shared. The 12 year old gifted child, who reasoned in this way for same pain, argued that "you can have the same kind of anger but you can't have the same anger". The task was formulated as "my anger" to introduce this possibility of sharing anger. All the subjects who interpreted the question as 'my anger', answered that it is not possible. This suggests that even at 6 years of age, children are aware that anger cannot be shared, an important aspect of the "grammar" of the word anger.

4.1.5(k) Summary of findings for same, similar and different when applied in a diversity of linguistic contexts

Children of different ages have a different understanding of the word same when applied in particular linguistic contexts although in other linguistic contexts their understanding is more uniform across age level. It was found that same alters its sense according to the linguistic context in which it occurs, that is, it is influenced by the words with which it co-occurs. Different things have different criteria of identity. Reciprocally, same affects the sense of the word with which it co-occurs. This suggests that word meaning is not

hidden within or behind the word itself but that it takes part of its meaning from the other words with which it is used.

Same ball and **same dress** were commonly applied in the equivalence sense for all groups of subjects. **Same apple** was most frequently interpreted in the equivalence sense with a progression to interpreting it according to the identity sense at 12 years. **Same seat** was interpreted according to the identity sense by all groups of subjects. The tasks dealing with continuity over time were evaluated according to the equivalence sense with focus on overt changes thereafter progressing to an emphasis on the identity sense by the older children. For **same pain**, place and type were drawn on in explanations. **My anger** and **my pain** were interpreted by the youngest children to mean **same pain** and **same anger** and by the older children as **my anger** and **my pain**. The older children then rejected these questions as impossible.

4.1.6 Definition and fuzzy boundary tasks in relation to tasks for same, similar and different in a diversity of linguistic contexts.

There was no single definition of the word **same** offered by subjects within any particular age level. The importance of the "grammar" issue is illustrated by the 'example as explanation' strategy commonly used by the younger children. They placed the word in an everyday context thereby demonstrating, unintentionally, the importance of context in determining the meaning of the word. However, they emphasized a single aspect of the word's meaning and failed to take into account its diverse uses across a range of situations. The latter was highlighted in the tasks assessing **same** in a diversity of linguistic contexts. The younger children were able to use and understand the word **same** in a variety of contexts although their attempt at a definition was limited.

The older children and adults commonly attempted a general explanation when defining the word **same**. They were also able to alter the sense of the word appropriately in different contexts but their definitions failed to account for these alterations in meaning. Fuzziness within the word **same** revealed through the variation between speakers as well

as for any particular speaker, allows for the different uses of the word which occur.

The fuzzy boundaries between **same**, **similar** and **different** were highlighted in two subjects' application of one of these words accompanied by different explanations and in their using different words followed by equivalent explanations.

4.1.7 Summary of findings for **same**, **similar** and **different**

The tasks dealing with the words **same**, **similar** and **different** gave rise to the following findings :

4.1.7(a) A definite progression was found in the senses of **same** from equivalence to identity only when **same** is used in certain contexts such as **same apple**. In other contexts, for example, **same dress**, the equivalence sense was most common and, therefore, no progression was apparent. The equivalence sense appears to be learned earlier in development and seems to apply to a broader range of contexts than does the identity sense.

4.1.7(b) The words **same**, **similar** and **different** gave rise to individual variation in that different subjects used the same word together with different explanations or, they used a different word together with equivalent explanations. Similarly, individual subjects used one word (for example, **same**), together with different explanations on different occasions, or different words together with equivalent explanations on different occasions. The fuzziness of these words may contribute to the individual variation but it is not undesirable and it does not detract from the communicative interaction.

4.1.7(c) Related to (b) above was the finding that the boundaries between **same**, **similar** and **different** are fuzzy. There was lack of agreement and a great deal of individual variation in the definitions and uses of these words. One adult subject attempted to stipulate the number of criteria for **same** versus **similar** which deviates from our everyday use of language. The nature of the test situation must be kept in mind in contrast to natural everyday language use.

4.1.7(d) Younger children commonly used examples as explanations in defining words thereby unintentionally placing the word back into an everyday context. In contrast, the older children and adults favoured general explanations which removed the word from its everyday context.

The subjects were all able to apply the word in a diversity of situations but their understanding of the word's meaning differed between age levels. It was found that a progression in development did not imply that the child ultimately arrives at a definite end-state use of the word which is equivalent to that of adults. On the contrary, the younger children displayed greater conviction in their explanations in comparison to the older children and adults who took a greater range of possibilities into account.

4.2 Pretend, think, know and believe

Findings for the adult subjects are presented first and findings for the children follow.

4.2.1 Findings for adult subjects

These are discussed according to definition tasks, fuzzy boundary tasks and tasks assessing the words in a diversity of linguistic contexts.

4.2.1(a) Definition tasks

All the adults used general explanations in defining **pretend**. There appears to be a "family resemblance" in their answers rather than a common 'core', similarly to findings for the word **same**.

4.2.1(b) Fuzzy boundary tasks

Fuzzy boundaries between the words **pretend** and **lie** were revealed in the performance of the adults as for that of the children. They did not all explain the contrast between these two words in equivalent ways but emphasized different aspects of the words' meanings.

4.2.1(c) Pretend, think, know and believe in a diversity of linguistic contexts

Adults adjusted the meaning they assigned to each word according to the context in which it occurred. This contrasts to the general explanations they offered in the definition tasks. For example, in

every context, *pretend did not involve 'taking away an essential aspect of the real behaviour'. Adults generally drew on numerous criteria in their explanations (for example, in **pretend to sing**).

4.2.2 Findings for the children are presented below : Spontaneous Sentences

Few errors of "grammar" of the word **pretend** were noted in subjects of all age groups. Furthermore, at all age levels, subjects used the word **pretend** in different senses such as 'deceiving another person' and adopting the characteristics of another person or animal. Examples of sentences at 6 years of age are: "I was pretending you were my friend"; "There was a boy and he used to pretend he was a cowboy"; "If you pretend that you're sick and you really not, then your mother thinks that you're sick". At 8 years, children formulated sentences such as "My sister pretended to be happy"; "He pretended to be very good at maths"; "I'm pretending to be a pirate".

Ten year olds offered sentences such as: "When I get a migraine attack, I like to think - I pretend - it's not in my head, it's my mother's"; "I pretend I'm George Washington"; "In films you pretend to be something"; "I pretend that I read well". Examples of sentences at 12 years of age are : "People pretend (so as) to get out of things"; "He was pretending to be cross"; "To pretend is very similar (to) to act or to perform...to act you do it - it's more realistic than pretend".

Pretend in a variety of senses may be acquired early in language development because of children's known ability to pretend from as early as 2 years of age.

In contrast to the correct use of the word **pretend** by children as young as 6 years of age, errors of "grammar" were found for the spontaneous production of sentences with the words **think**, **thought**, **dream** and **believe**. Examples of errors are :

4.2.2(a) "I think I went to the play" (and did you?) "Yes". Here the child uses the word **think** incorrectly to describe a past behaviour about which he has full knowledge. This contrasts to : "I think I put the keys away". A certain absent mindedness in carrying out automatic behaviours renders the use of **think** acceptable in this

latter case. **Think** was predominantly used in colloquial form at 6 years, as in "I think it's hot today" in contrast to its use as a mental term, for example, "I'm thinking out this problem" (Wellman and Estes, 1984).

4.2.2(b) The 6 year olds commonly used the word **thought** as the past tense of **think** rather than as the noun 'thought'. This task (Q87) preceded that of **think** (Q92) and could not, therefore, be a response to Q92. Sentences with "grammar" errors offered by older children were: "I thought for 10 weeks" (8 years); "I thought very nicely" (8 years); "I thought he was building a car" (Was he?) "Yes - it was blue" (10 years); "I could see that the thought in that person's head was angry" (How?) "by his face" (10 years).

4.2.2(c) Younger children were unaware of their use of **think**, for example a child trying to think of a sentence with **think**, said, "I can't think of one - let me think - I think I'll get a BMX" (6 years), unaware of his use of the word **think** on the first two occasions. Older children and adults laughed when they recognized these uses.

The older children and adults gave sentences such as : "All different people have different thoughts" (12 years); "Sometimes my thoughts escape me" (adult).

4.2.2(d) **Dream** was frequently used in present tense or present continuous tense which reveals a "grammar" error. Daydreams can take this form as in, "I'm dreaming!" when one comes back to reality and again puts one's mind to the task at hand, but dreams are most commonly related in past tense. Examples of errors are: "I dream that there's a kitten in my bedroom" (6 years). The use of the historic present cannot be ruled out although this seems unlikely as a deliberate use on the part of 6 year olds.

4.2.2(e) From 10 years, children used the correct tense with **dream** or they used **dream** as a noun. An example of a sentence at 12 years is: "A dream is abstract - not necessarily realistic..."

4.2.2(f) Sentences with **believe** gave rise to the past progressive form as in "I was believing you were my friend" (6 years). From 10 years, children produced sentences such as "he plays make believe games" thereby introducing an altered sense of **believe** and they used

"believe in"; "I don't believe..."; "You can believe in a faith" (12 years).

4.2.2(g) **Know** was used correctly by all children, initially in its more colloquial sense, for example, "I know your name" (6 years); "I don't know you" (6 years, 8 years) and from 12 years, in the sense, "If you know something, you usually have the knowledge of it".

4.2.3 Definition tasks

The following tasks are analyzed :

- a) What does it mean to pretend? (Q164)
- b) How can you tell when someone else is pretending?
Probe Can you always tell? (Q162)

4.2.3(a) 'What does it mean to pretend' (Q164) revealed the same types of answers for different age groups as was found with the definition tasks for **same**. The 6 year olds explained by means of an example with the older children drawing on examples to aid their explanations: "you pull face and then when they ask you, you just smiling" (6 years); "...when you pretend that you a baby and afterwards you laugh or something" (6 years); "pretend you've got a tummy ache" (6 years). However, some 6 year olds gave a general answer such as, "when you chaff" or "when you chaffing someone". 38% of the 6 year olds were unable to answer, stating that "it's too hard".

At 8 years, children gave general answers such as, "when you chaff"; "When you joke someone"; "pretend means you aren't really doing a thing..."; "it's like, act...". Some children added examples to their general explanation such as "... like when you - say you cry, you not really crying you pretending - that you crying". An example as an explanation was drawn on by one subject only (an 8 year old).

At 10 years of age, general answers of the following type were offered: "to act like something else or someone else"; "you joking, like, chaffing"; "you not telling the exact truth..."; "it means you not really doing it, you not really crying ... or laughing". In the latter responses, examples are also included in the explanation, but differ in complexity from those of the 6 and 8 year olds.

At 12 years, children explained **pretend** as: "it's not real, to make it up"; "you joking, it's not true"; "you make up that you really whatever you not..."; "to chaff". Some 12 year olds became embroiled in the fuzziness of language and displayed difficulty in expressing their views, for example,

"(pretend means) lots of things...it means to pretend...it means that something's happened or something hasn't happened. Say something hasn't happened, and you tell a friend it has happened ...like say a car crashed into a wall...and...you say it hasn't happened, you pretending. You can call it lying but... it's not a serious thing. I'd say it's pretending and...like if you want to pretend and he knows that you not...that you not... that you are pretending he doesn't even think that you funny or whatever, you..."

Adults provided answers such as: "to pretend is not to be yourself, to be something else"; "to try to make someone believe that something is something else"; "to act like someone else"; "to play at being something else".

4.2.3(b) For the task 'How can you tell when someone else is pretending? Probe: Can you always tell? (Q162), 88% of the 6 year olds gave a definite answer focusing on overt characteristics, for example, "When they laugh afterwards"; "when they smiling"; "when they standing still and chatting"; "when they tell you". One 6 year old (S49) only answered that "you can't, 'cos you just can't tell when they pretending or not!" after which he added an example: "because I know my sister well and she plays and she cries and I just say 'Sharon, you not crying - really'". It should be noted that the 6 year olds most commonly focus on overt characteristics in their explanations.

At 8 years of age, overt characteristics were also emphasized, for example, "when they start to smile", although 75% of the subjects displayed uncertainty, for example, "I don't know"; "I don't know if you can, no, you can't"; "sometimes you can tell, not always"; "there's no way - 'cos you have to see if he's done the thing or hasn't".

At 10 years, subjects offered a context to explain and extended beyond the single examples used by 6 year olds in many tasks, as is clear from the following : "You can see the expressions on his face and you, most times, know how he really acts. He's acting differently this time"; "you can see on them, they'll have like a funny look on their face or you'll say 'stop lying or pretending' and he'll smile or he'll just start laughing"; "with some people you can't tell...unless they tell you afterwards...well some people do it better than others"; "you actually can't but sometime you can - when like they peep and they see I've turned around then they might open the eye". At 6 and 8 years, subjects gave one criterion only. At 10 years, they offered different explanations depending on the context.

Twelve year olds concentrated on the difficulties one has in being certain, for example, "you can't (always tell)"; "maybe he's smiling or sometimes you don't know..."; "Well, with me you can (tell) but some people can keep a straight face". One gifted child offered numerous explanations: "Well, often they pretend about impossible things so you can tell by that or - you know about something before they actually pretend about it or - you can see by the way they're acting - most ... turn around and start giggling ... it's slightly easier if you know the person ... an unfamiliar person may be nervous ... and you can tell".

Adults suggested similarly, that "you can't always"; "you can usually tell, not always and you can (then) see that it's - you can see that it's not something sincere". Adults mentioned different criteria from those put forward by the children namely, "...depending on if the story is really outrageous or not you can just see if the person's pretending ..."; "...if you know them, they act in a different way from what you know they are..."; "...it depends on the age like, little kids you can see when they pretending to play at adults..."; "I think the tone of the voice betrays them sometimes..."; "by the actions leading up to and after ... (the act of pretence)"

It is clear from the findings for both Q164 and Q162 above that numerous criteria are drawn on in explaining pretend and contextual cues are emphasized. For Q164, 'What does it mean to pretend', general explanations such as "chaff" were offered. However, the difficulties we have recognizing pretence in another person are

illustrated by the responses for Q162, 'How can you tell when someone else is pretending?'. It would appear that a different set of criteria is required in order to pretend oneself versus recognizing that someone else is pretending. This is further exemplified in Q158, 'What do you do when you pretend?'.

Pretend was most commonly explained by all subjects in the sense of 'deceiving' another person rather than in the sense of taking on the characteristics of another person or animal.

4.2.3(c) Summary of definition tasks

The definition tasks for the word **pretend** revealed:

i) An overall increase in the use of general explanations with a corresponding decrease in using an example as an explanation was found for different age groups. However, unlike definitions of **same**, with **pretend** even 6 year olds, at times, used a general explanation. From 8 years, general explanations were common or an example was included together with a general explanation.

ii) In accordance with (i) above, the word **pretend** was most commonly excluded from the definition.

iii) The reverse trend at 8 years found in the definition tasks for **same** was not apparent for the **pretend** tasks.

iv) There was no single definition of **pretend** offered by subjects within any particular age level although "chaff" was common for all groups of subjects.

v) A host of criteria and contextual cues were drawn on in explaining **pretend** and these differed when **pretend** was applied to oneself versus to someone else.

4.2.4 Fuzzy boundary tasks

4.2.4(a) Q140, 'Is to lie about something the same as to **pretend** about something or is it similar or different?' was included on the basis of subjects' responses on other **pretend** tasks. As an example, one 12 year old suggested for Q158 ('What do you do when you pretend?') that "you not really...pretend you just...you lying". When

required to contrast to pretend and to lie, this subject argued that they are different: "to lie you say something that's absolutely not true; to pretend you're playing around". Other children explained, similarly, that "um...when you pretend you...well...you don't do...you just make up anything...but you don't do it in a manner like it's lying, you do it like playfully" (12 years); "(They) different - to lie is more serious;" "To pretend means like, it's only a joke" (10 years); "it's different - to lie is...to pretend is, you just joking with a person, and to lie is you telling them...you not joking, you actually telling them a lie (laughs)" (12 years); "different - 'cos if you lie you aren't telling the truth and if you pretend you just playing" (6 years).

The answers for this task revealed that these two words may be used interchangeably at times, although at other times the differences between them are apparent. Examples of this are, "Well, often a person lies about something and they're pretending to themselves and to other people that...something is not what it really is so it's possible (to be the same)" (12 years, gifted); "if you pretend to be sick and if you lie to be sick, you pretending - it's similar - one is you not telling the truth and the other, you pretending to make it the truth" (12 years).

6 year olds provided an example as an explanation, such as

"to lie - like, just say...when you were in the bath, you never bathed yourself and your mother said, 'Did you bath?' So, you said 'Yes' and that's a lie 'cos you never really bathed. To pretend - like if you haven't got...a doll, you say to your friend 'I've got a...doll' and you haven't and that's - you pretending 'cos you haven't really got one".

Other 6 year olds emphasized that they are two different words so they must be different, as in "different - 'cos to lie and to pretend" (each of the underlined words was stressed).

Adults emphasized the differences between them, for example, "Different - 'cos a lie is usually to get you out of trouble or to prevent something from happening whereas pretend is usually as a practical joke or it's...not usually...well, it's different"; "'cos lying - it's different 'cos you are deceiving a person and that person

has no idea that you are deceiving them;" "Pretending is...they could be the same but you may pretend and the person may know you're pretending...like if I pretend I'm someone else, my mother knows that I'm me and not someone else"; "No, they similar 'cos they both not the truth but lying is like telling something that's absolutely not true and pretending is - like, lying is basically bad and pretending not"; "I think lie is more harsh..."; "more blatant"; "...if you pretend about something you're really doing it for the fun of it. But lying I think is stronger, you've doing it to deceive". No subject mentioned that pretend can be either verbal or non-verbal whereas lying is always verbal.

The fuzzy boundaries between these words are illustrated in the difficulties the subjects experienced in offering succinct definitions in this task.

4.2.4(b) Summary of Fuzzy boundary tasks

i) As for the definition tasks, the fuzzy boundary tasks revealed a developmental progression from providing examples as explanations to using general explanations although general explanations were drawn on by certain 6 year olds. For all age groups, the word lie was more frequently included than pretend in the explanation.

ii) The fuzzy boundaries between to lie and to pretend were revealed.

iii) The definition and fuzzy boundary tasks together suggest that defining a word in contrast to another word leads to an emphasis on certain aspects of the word. Contrasting to pretend and to lie resulted in an emphasis on the 'playful' nature of pretence.

4.2.5 Pretend together with think, know and believe in a diversity of linguistic contexts

These tasks are phrased as comprehension questions but they require that the child reflect upon the meaning of the word, for example, **pretend**, in relation to the word that follows. **Pretend** is analyzed together with **know**, **believe** and **think** in the following contexts (see appendix D for details):

- | | | |
|----|--|---------------------------|
| a) | pretend to walk | (Q175) |
| b) | pretend to sing | (Q176) |
| c) | pretend to be in pain | (Q178; Q80a,b; Q72; Q100) |
| d) | pretend to dream | (Q180) |
| e) | pretend to write | (Q183) |
| f) | pretend to be angry | (Q181) |
| g) | pretend to think | (Q177) |
| h) | pretend to laugh | (Q179) |
| i) | pretend to be yourself | (Q182) |
| j) | pretends he's sick | (Q166) |
| | knows he's sick | (Q167) |
| | thinks he's sick | (Q168) |
| | believes he's sick | (Q169) |
| | What does it mean to believe something? | (Q132) |
| k) | pretends he can fly | (Q203) |
| | knows he can fly | (Q202) |
| | thinks he can fly | (Q201) |
| | believes he can fly | (Q204) |
| l) | believes he has a skateboard | (Q198) |
| m) | thinks he has a bicycle | (Q187) |
| n) | Which one is he more sure to fly - if he <u>thinks</u> , <u>knows</u> , <u>pretends</u> or <u>believes</u> he can fly? | (Q205) |

'How do you pretend to...', Q175 - Q183, investigate the "grammar" of the word **pretend** as it occurs in different linguistic situations. These tasks are formulated as comprehension tasks but they require that the subject reflect upon the meaning of each word thereby including a metalinguistic component. Furthermore, the probes raise the task to the level of metalinguistic awareness.

4.2.5(a) The use of **pretend** gave rise to different findings when applied in different linguistic contexts. **Pretend to walk** (Q175) yielded no developmental progression. These findings are presented in table 2. Subjects of all ages found it comparably difficult and confusing. Many argued (in all groups) that one cannot pretend to walk, "if you walk, you walk" (38% of 6 year olds, 19% of 8 year olds, 31% of 10 year olds, 44% of 12 year olds and 40% of adults). The commonest answer for **pretend to walk** was "walk on the spot" which was offered by all age groups predominantly in the groups 8 years and above (13% of 6 year olds, 31% of 8 year olds, 50% of 10 year olds, 44% of 12 year olds and 50% of adults).

The explanations offered by the adults differed from those of the children in complexity of formulation but not in content. The children gave answers such as: "when you walk, you walk - you could only walk one way" (6 years); "I can't pretend to walk 'cos everyone walks - like, the people who haven't got broken legs...it's impossible to pretend to walk..." (10 years). Adults explained that **pretend to walk** suggests that one is "...going through the motions without actually doing it"; "the action of walking is - more covering distance than getting from one place to another and by...moving your legs...you give the impression of covering distance".

TABLE 2 : Criteria for pretend to walk

Q.175 How do you pretend to walk?

On this task there was no developmental progression. Certain subjects have answers reflected in more than one category.

Criteria for pretend to walk	Age level in years				
	6 years	8 years	10 years	12 years	Adults
walk on the spot/sitting	13%	31%	50%	44%	50%
Can't pretend to walk	38%	19%	31%	44%	40%
Just stand and don't move	13%				
Walk in a different way	31% eg. "stop quickly"; "limp"; "walk slowly"	25% eg. "not really walking"; "very fast"	13% eg. "move around "mm - do something funny... limp..."	19% eg. "stumble"; "stroll along"; "walk in a straight line or walk funny"	
Don't know	13%	19%	13%	6%	
Miscellaneous		13% eg. "pretending you walking out the gate when your friend's not looking and hide somewhere"	13% eg. "use fingers"; "or two tables and hold yourself up and move your feet"	38% eg. "make the sound of walking and move arms"; "stand on an escalator and walk"; "hold onto a suspended metal bar and move your feet" "sitting in chair and say: 'Look I'm walking"	20% eg. lie down and move feet"; "have to do it in your head-visualize your legs moving"

4.2.5(b) Pretend to sing (Q176) yielded a different picture through development as is depicted in table 3.

TABLE 3 : Criteria for pretend to sing

Q.176 How would you pretend to sing?

Age level in years

<u>Criteria for pretend to sing</u>	<u>6 years</u>	<u>8 years</u>	<u>10 years</u>	<u>12 years</u>	<u>Adults</u>
Move mouth and sound	19% eg. "don't use the same voice"; "you sing very softly"; "sing in another voice"	25% eg. "la la"; "hum"; "make up any old thing- not a proper song"	25% eg. "tune"	25% eg. "mouth closed-hum"; "mumbling or whistling or something"	10%
Move mouth without sound	50%	56% eg. (+ radio on); "when others are singing"	75% eg. "and hold 'mic' in hand in front of mouth and dance"	69% eg. "sing to yourself without anybody knowing"	70%
Can't pretend to sing	19%	6%		19%	20%
Don't know	31%	13%			
Miscellaneous				6% "tell them you sang"	

The commonest suggestion by subjects of all age groups was that one move ones mouth without making any sound (50% of 6 year olds, 56% of 8 year olds; 75% of 10 year olds; 69% of 12 year olds and 70% of adults). In contrast to the 6 year olds, from 8 years of age,

subjects explained pretend to sing by drawing on a broader context which was more elaborate with increasing age. As an example, at 6 years, answers were "just make your mouth go up and down"; "you just open your mouth and you don't sing". At 8 years, explanations given were "you can pretend - on the radio...";

"you'd like move your mouth and not really sing and other people would sing around you and then they'd think your mouth - seems like that the others are singing for you 'cos they can't tell"

At 10 years, children explained that "you just like holding a teaspoon or something in front of your mouth and open your mouth or something"; "you could open your mouth and play a tape and then move"; "you could just stand and chaff you holding a mike and close your eyes and move". At 12 years, children suggested : "I would open my mouth and move my lips...like dance or something like that";

"You pretending that you singing but you not, you just...if somebody's at a far distance and they can see your mouth moving, they'll think you singing".

The adults gave answers of the following type:

"(I would) open my mouth, move my lips, probably tilt my head upwards, hand to my breast as...opera singers and try and imitate the actions of the other people without actually producing sound - unless I do sing and I pretend I'm singing - in which case I'd make a sound - not the actual sound...it would be totally different".

In contrast to the children, many of the adults offered a general explanation such as: "It's more the action than the actual words" that is important; "You could pretend in various ways"; "You make all the facial expressions and posture and that..."

The probes, namely, 'But when you sing you have to make a sound, so would you be pretending to sing then or to do something else?' or 'But then are you pretending to sing or are you really singing?' were answered differently by children of different age levels. The 6 year olds either retained their original view with conviction or answered "dunno". One 6 year old attempted to explain: "they wouldn't know (if you were talking or singing) - that's the hard thing about it". The

10 year olds (63%) generally answered "don't know" when probed and some mentioned spontaneously with probing that you "may be pretending to talk". 12 year olds and adults attempted to refine their original answer to allow for this distinction to be made, for example, "Just say singing a song, usually it has a...your words flow. When you talk they don't always flow. So you could judge it".

It is possible that younger children are not familiar with the 'operatic' conventions of singing which would allow them to pretend convincingly.

4.2.5(c) **Pretend to be in pain:** Four tasks are included in this section.

i) Q178 gave rise to the common answer in all age groups: making a noise and clutching the painful area of the body. On this task, unlike the other **pretend** tasks, 6 year olds mentioned more than one criterion in their explanations as did the older subjects. These findings are illustrated in table 4.

Answers were of the type: "you'd be going agh! agh! agh! (holds stomach) and going 'I've got a pain in my back or something" (6 years); "if your tummy's sore, hold your tummy, and then if they ask what's wrong then afterwards you laugh" (6 years); "Screaming, and pretend to cry, and..." (8 years); "you keep moaning and groaning and say 'it's sore'...and you make a whole big thing out of one little thing" (8 years); "you pretend to hold it...where the pain is" (10 years); "Like it...you've got a pain in your stomach. You'd hold your stomach. Like you could make noises" (10 years). Facial expression was mentioned from 10 years of age. At 12 years, besides clutching that part of the body and making a noise, other actions were mentioned, for example, "...limp"; "...you'd fall on the ground"; "put your hands around you or...lie down on the floor"; "by holding your stomach and walking over-bently"; "you would cry out in agony or something like that".

TABLE 4 : Criteria for pretend to be in pain

Q.178 How would you pretend to be in pain?

Age level in years

<u>Criteria for pretend to be in pain</u>	<u>6 years</u>	<u>8 years</u>	<u>10 years</u>	<u>12 years</u>	<u>Adults</u>
make a noise	21%	31%	38%	50%	40%
clutch that part of the body	36%	69%	94%	63%	70%
say "it's sore"	29%	25%		13%	
laugh afterwards	29%				
lie in bed	14%				
pretend to cry		19%	13%	13%	10%
facial expression		6%	38%	19%	20%
chaff		19%			

The example of a sore tummy was drawn on by subjects of all ages, probably due to its emphasis in the picture tasks and those tasks in a broader situational context (eg. Q60). The majority of subjects in all groups mention both that one would make a noise and that one would clutch the 'sore' part of the body.

Adults answered in general terms such as "by going through the action and making sounds as if to say you're in pain"; using "postures and facial expressions and trying as much as possible to look like someone who is in pain"; "put on a whole lot of visual cues of pain".

This **pretend** task necessarily takes the situation out of context. In contrast to real pain, with pretend pain there may be no preceding event which leads to pain. One adult argued that one can pretend to be in pain (versus **pretend to walk**, **pretend to sing**, and **pretend to think**) "'cos that's (the pain's) not there before..." It is possible, however, that somebody could hit you but not hurt you and you could pretend to be in pain as revenge. In this case, the pretend behaviour has a potentially painful situation preceding it. Children do this in play or to taunt one another when fighting.

ii) All subjects readily recognized **pretend pain** behaviour in the task 'Johnny falls...Is he in pain or not?' (Q80b in contrast to 80a). Pretending about being in pain involves actions which extend beyond the pain behaviour itself, for example, laughing. That John is in pain was concluded on the basis that "he fell", that "he's holding his stomach", "crying" and so on. For all groups of subjects, the second picture (John laughs) indicated that he was pretending ("chaffing") to be in pain. The 6 year olds had explained in Q162, 'How can you tell when someone else is pretending' and Q72 'How can you tell when someone else is in pain' that laughter enables one to discern whether the person is pretending or not.

'Pretend to be in pain' is recognised by the overt and frequently exaggerated behaviour associated with being in pain, followed by laughter. Pretending to be in pain oneself draws on the same set of criteria that one focuses on when recognising this behaviour in another person. In contrast, being in pain oneself draws on a different set of criteria from recognizing pain behaviour in another person. One's own pain is marked by physical discomfort which cannot be experienced when acknowledging another person's pain. Recognizing pain behaviour in another person is based only on overt manifestations such as clutching the injured part of the body, moaning, and so on. This is an important distinction with regard to the "grammar" of the word **pain** and the way in which it is learned by children.

For Q80(a) and (b), adults were probed further with 'Could he be pretending he's not in pain' to which they agreed that he could "to portray an image that - he's strong...tough...to deny it"; "he might do it for social reasons, like, he wouldn't want his friend to think that he's a baby". This probe also suggested that another "language

game" may be required to learn 'pretend not...in pain' since it draws on an entire situation. Laughter is suggested by the word **pretend** and applies to all the **pretend** tasks when one is attempting to deceive someone else. However, for tasks such as **pretend to walk** and **pretend to be yourself**, subjects did not mention laughter. They concentrated on whether pretence was possible in these contexts. 'Walking' and 'being oneself' were the focus of attention rather than common behaviours associated with pretending.

iii) In Q72, 'How can you tell when someone else is in pain', the probe 'How do you know they're not just pretending?', throws light on the "grammar" of the word **pretend** in relation to that of **pain**. Six year olds emphasized that "they start to smile" or "afterwards they'd laugh" (75%) or that they tell you they were only pretending (25%). Eight year olds emphasized the difficulty one has in discerning pretence, giving rise to "I don't know" answers (38%) or "you can't tell" (13%). Other 8 year olds suggested a diversity of answers such as :

"If you try to make them blink, then they start crying. If they've got a pain and you go like this (hands over face), and you clap, then they start to blink, and then they start to cry, then you know that they pain";

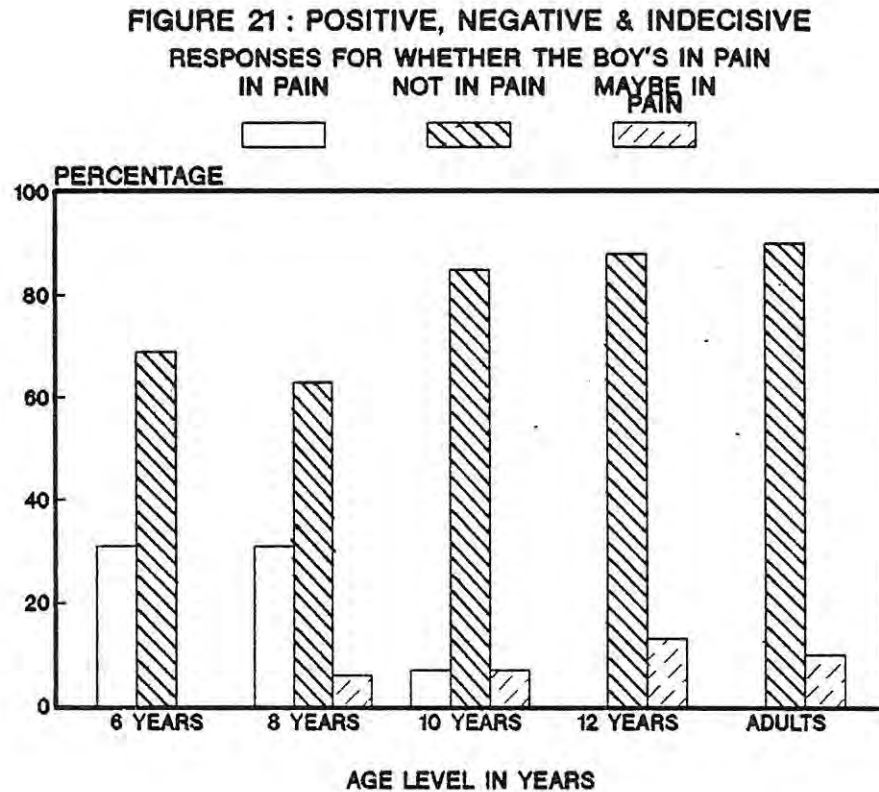
"there might be a bruise there"; "if you can see a cut or something". The majority of 10 year olds argued that one cannot always tell if someone is pretending to be in pain or not (88%). One child suggested that one "take them to the doctor, then the doctor can say if they pretending". Fifty percent of the 12 year olds emphasized that one "cannot be sure" but they provided more varied explanations than did the 10 year olds, for example,

"I'd realize it with my friend 'cos he's not acting in his usual way. With a stranger, I don't know if I could tell all the time, say you've never seen the person before and he could always walk with a limp and it might not be sore";

"...you can't make your face just go pale"; "I wouldn't hop around the playground if I wasn't in agony"; "...if you examine the place where they complaining, you can often see..." and, "... but why, who'd want to pretend to be in pain?" Adults offered equivalent answers to the

12 years olds, emphasizing that one "can't tell" with explanations such as, "...it depends how good a judge of character you are".

iv) 'Could this boy be in pain or not?' (Q100) drew on characteristics which could have indicated pain (for example, holding the stomach) but which, when occurring together with characteristics such as laughter, suggest otherwise. Figure 21 demonstrates this overlap.



At least 63% of subjects in each age group concluded that he was not in pain (69% of the 6 year olds; 63% of the 8 year olds; 85% of the 10 year olds; 88% of the 12 year olds and 90% of the adults) and gave as their reasons that "he's laughing" or "he's smiling". Again, overall there is a small increase with age in the percentage of subjects who mention that he is not in pain. There is once again the noticeable trend of a slight decrease at the 8 year level.

Only a few other reasons were offered, namely: "he's yawning"; "he's singing"; "he's angry". The possibility that he was sore from laughing, "a happy pain" (10 years), was suggested by 10 year olds (25%), 12 year olds (25%) and adults (30%). Other adults gave more

novel explanations suggesting numerous options, unlike the single-faceted answers of the 6-12 year olds. The adults argued, for example, that he "could be laughing and pretending it's not sore"; he "could be - or shouting or crying or laughing"; "depends on circumstances - he may be laughing, singing or in pain and crying".

When probed, with 'Could he be pretending that he's not in pain? Why would he do that?', all the 6 year olds misunderstood this question, interpreting pretend not to be in pain as pretend to be in pain they answered accordingly, for example, "'cos he also wants toys...his mother will feel sorry for him". (This probe was not included for the 8 and 10 year olds). Many of the 12 year olds and adults accepted this as a possibility. Some doubted this, for example, "no - he's holding himself so he won't fall over" (12 years). Fifteen percent of all the subjects did not identify the boy as pretending to be in pain but argued that he was in pain. They focused on the hand position and failed to take into account his laughter as well.

4.2.5(d) 'How do you pretend to dream?' (Q180) was explained by 6 year olds as pretending to sleep, for example, "you just chaff that you sleeping"; "when you don't really close your eyes - you peep". From 8 years, children began to argue that "you can't" pretend to dream or they explained it as pretending to daydream. At 10 years of age, "can't" and "don't know" predominated, for example, "I don't think you can - you can pretend to someone that you had a dream..."; or they found an active means of explaining, as in "chaff you sleepwalking"; "you could lie down and toss and turn - it could be a bad dream...you could be doing a play...". Suggesting a play, introduces a different sense of pretend. Similar answers were found at 12 years and at adult levels. "Can't" was mentioned for reasons which differed from those provided for pretend to walk (Q175). They did not argue that "if you dream you dream" and therefore we cannot pretend to dream as they had proposed for pretend to walk. Rather, they suggested that we cannot pretend to dream because dreaming is "going on inside your head and other people can't always tell when you're dreaming..." (adult).

4.2.5(e) How do you pretend to write (Q183) yielded uniform answers in content for all age levels. Subjects emphasized moving one's hand up and down over a piece of paper or over no paper at all, using a pen

but making no marks on the paper, using a closed pen or using no pen at all, with the fingers as "in a grasping position" (adult). When probed with regard to marks being essential to writing, 'so are you pretending to write or are you pretending to do something else?', they all remained firm that they were pretending to write. Contrarily, with **pretend to walk** (Q175) those who mentioned, as an example, "walking on the spot", displayed confusion when probed, 'But walking means we have to get from one place to another so, are you pretending to walk or are you pretending to do something else?'

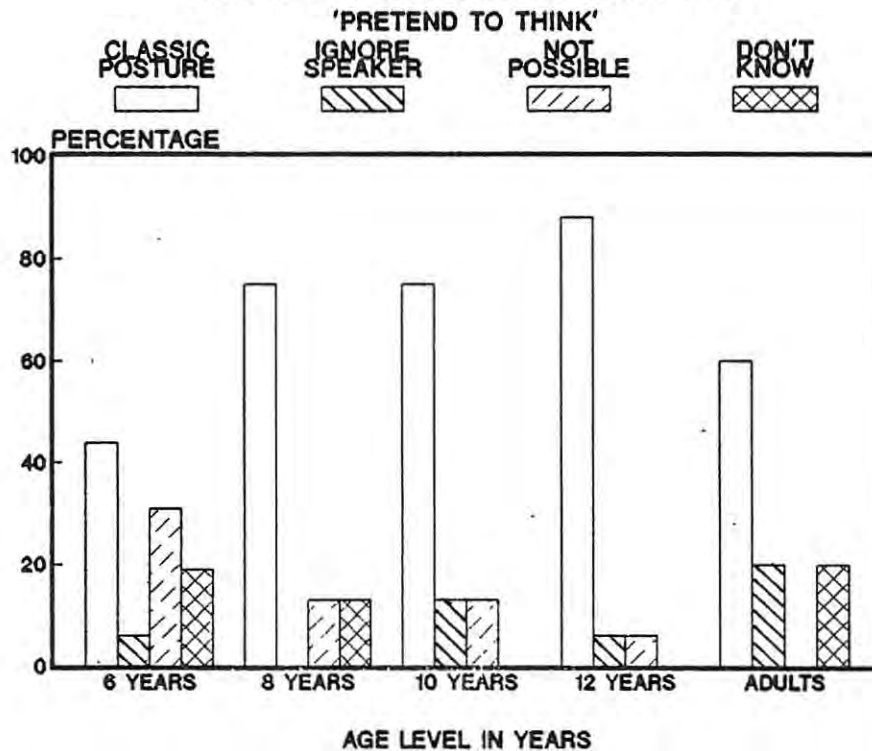
4.2.5(f) For 'How do you **pretend to be angry?**' (Q181), subjects of all age levels agreed that we can pretend to be angry. Thirty eight percent of the 6 year olds answered "I dunno" but the remainder gave answers such as "start shouting and screaming". For all age groups, criteria such as facial expressions, shouting, and telling the other person, were mentioned. It was pointed out that one shouts "for no reason" (adult); "... he hasn't done anything" (10 years); "you just make it up" (10 years). The uniformity of responses confirms the findings for **pretend to write** (Q183).

4.2.5(g) For 'How do you **pretend to think?**' (Q177), the largest percentage of subjects in each of the age groups mentioned or displayed gesturally the stereotyped ('classic') posture for thinking, namely, sitting down, staring into space or closing one's eyes, leaning one's head on one's hands or placing one's finger on one's chin as opposed to ignoring the speaker or arguing that one cannot pretend to think. These findings are revealed in figure 22, namely, 44% of the 6 year olds, 75% of the 8 year olds, 75% of the 10 year olds, 88% of the 12 year olds, and 60% of the adults. Examples of explanations are: "just sit and stare" (6 years); "you could just sit down like you do when you really think (6 years); "when you just looking and looking and looking" (6 years)' "sit down and you aren't thinking but they really think you are, that you're trying hard" (8 years). Some children (from 6 years) suggested that you ignore the speaker.

At the 12 year old and adult levels, subjects used general terms and mentioned "concentrating". They also offered more than one criterion though the content of their answers was equivalent to that of the younger children. Examples include "sit down and not concentrate on anything else around me - just look straight ahead or something" (12

years); "by just like screwing up your eyes and looking very - concentrated, like when you concentrating" (12 years); "you couldn't pretend to have a mental process but you could put on facial expressions..." (adult); "...you would try to portray thinking, by looking very deep in thought, by being thoughtful..." (adult).

FIGURE 22 : CRITERIA SELECTED FOR



When probed further with regard to whether 'something is going through your head, when you pretend to think', 6 and 8 year olds generally answered "no" and 12 year olds "not necessarily". Some older subjects acknowledged that we could pretend to think and be thinking at the same time (13% of the 10 year olds, 25% of the 12 year olds). The gifted 12 year old reasoned that "I'd probably stop thinking when I've been thinking how I could make myself look like I'm thinking". Similarly, an adult explained that "you most definitely will be thinking because you are concentrating on pretending". Some 12 year olds and adults argued that "you can't do them at the same time" (12 years) and a particularly precise explanation was offered by one adult, namely that "to pretend to think, you'd give the impression that you're deep in thought but in actual fact you're not thinking about anything" (adult).

It is of interest that the 'classic' posture for thinking was mentioned by 6 year olds in Q131 ('What do you do when you think?') whereas the older children and adults favoured a broader range of criteria on this task. Q177 (pretend to think) is revealing with regard to the meanings of both the words pretend and think.

4.2.5(h) 'How do you pretend to laugh?' (Q179) yielded a great deal of diversity both within and between groups. The commonest answer was that you go 'ha, ha, ha' but other aspects of the pretend situation were variably included in the explanations. 6 year olds argued that "you wouldn't laugh but you would just go 'ha, ha, ha'", some adding "when it's not funny"; or "you can't pretend to laugh"; or "you'd just - chaff you laughing". Similarly, at 8 years, it was suggested that "you'd laugh but - for no reason"; "I'd laugh in a funny way and it sounds like I'm laughing; it sounds different" or, "by telling myself a joke and then laughing (laughs)... 'cos you told yourself a joke and someone never..."

At 10 years of age, children mentioned that you "have a false laugh", "you'd make a funny sound or something like that..."; or "you could just laugh but you not really...ha, ha, ha...". Others mentioned different criteria, for example, "make your facial expressions exactly the same as if you were really laughing" or mime. They all implied that it would sound different from an ordinary laugh. Similar answers were given by 12 year olds who mentioned "laughing and not making any sounds"; or that "it sounds different from a real laugh". Certain 12 year olds placed it in a broader context, for example, "...what actually made you laugh wasn't a joke that the person told you 'cos you were only fake laughing"; "...you're not laughing at anything funny, just for the fun of it".

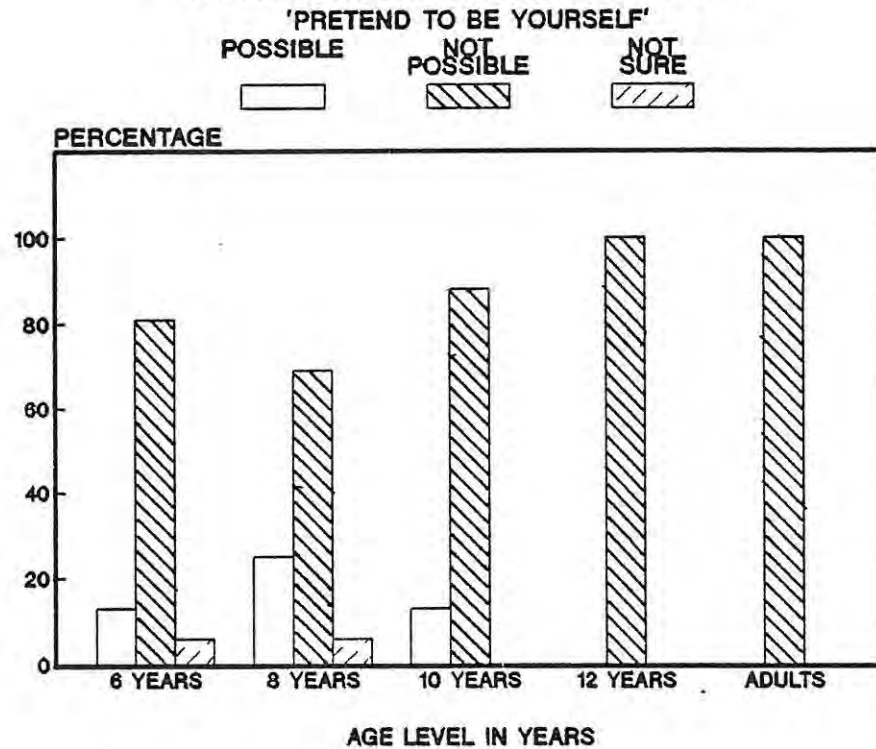
Adults mentioned the stereotyped 'caricature' of laughter, that is, "by holding your stomach and your head back - you going through the actions with no sound being emitted". The individual variation within the adult group was evident. Lack of spontaneity precipitating the laughter was mentioned, for example, "...because laughter is something that comes, it's spontaneous so you can't pretend...no you can't imitate spontaneity"; "you'd laugh but there wouldn't be a reason for it - it wouldn't be all spontaneous"; "you'd just force out your laughter". The numerous ways in which laughter may be simulated were mentioned by one adult: "you could either go and do it in your head, or you could mime it, or you could actually do it but not really - it's not sincere". The major characteristics of laughter that were emphasized when pretending to laugh include :

- i) altering or removing the sound
- ii) laughing for no apparent reason
- iii) adopting the stereotyped posture associated with laughter (only adults mentioned this in contrast to the stereotyped posture for thinking, Q177 which was mentioned by subjects of all ages).
- iv) forcing the laughter in contrast to its natural spontaneity.

In this set of pretend tasks (a-h), it is of interest that the older subjects added a broader context. This is not equivalent to the 'example as explanation' strategy used by the younger children in numerous tasks. Where a broader context is drawn on, the subject displays no confusion. The word is placed within an everyday context. However, when he attempts to remove language from its everyday context(s), as in general explanations, confusion may arise.

4.2.5(i) 'How do you pretend to be yourself" (182) gave rise to the following responses as can be seen from figure 23:

FIGURE 23 : CRITERIA SELECTED FOR



There is again, a slight overall increase in the percentage of subjects who argue that you cannot pretend to be yourself (81% of 6 year olds, 69% of 8 year olds, 88% of 10 year olds, 100% of 12 year olds and of adults). After 10 years of age, the other options are never chosen. Again, there is a slight decrease at the 8 year old level. The majority of subjects in all groups answered with or without probing, that you "can't pretend to be yourself because you yourself already" (6 years); "yourself is yourself" (10 years). Many subjects of all age levels did not reject it outright, for example, "like you do what you did the other day" (6 years); "put wigs on" (laughs, 6 years); "well, you just don't do anything, you just act the way you really are" (10 years); "well most people try and act as kind and as gentle as possible" (12 years); "...what you would do is you'd pretend to be the person other people believe you to be" (adult); "act normally" or "act normal" (12 years). Many of these subjects spontaneously changed their minds and concluded that one cannot pretend to be oneself (final responses are reflected in figure 23 above).

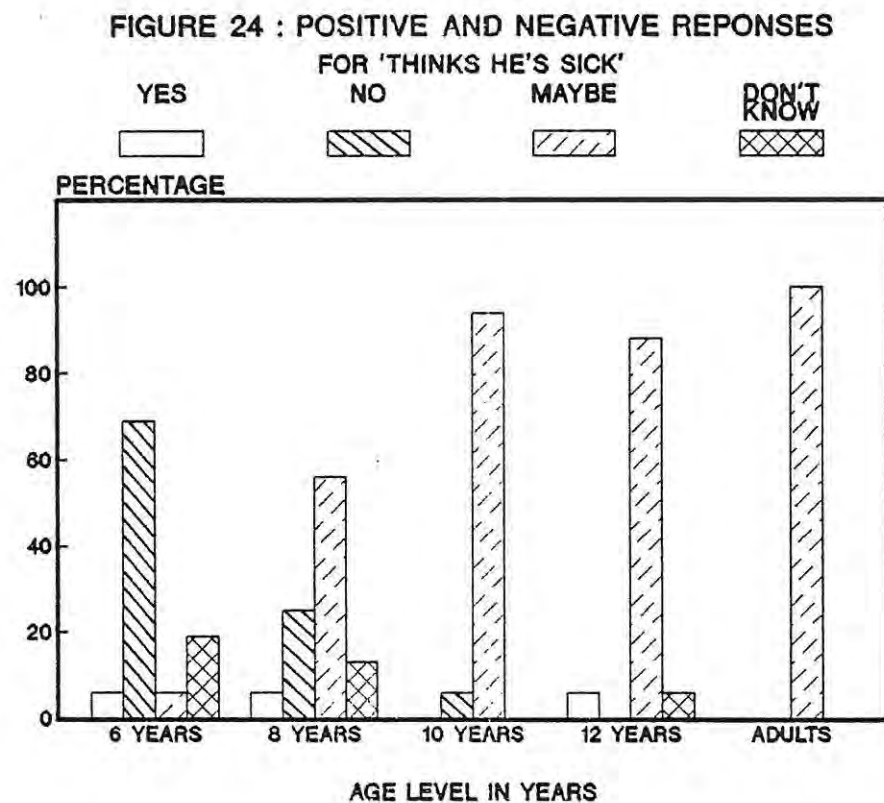
The difficulties with this question are revealed in the following answers: "You impersonate yourself, like...No, not really. You can impersonate someone else but I don't know. You can't pretend to be

yourself. You always are yourself" (12 years); "you wouldn't really be able to - you - just pretending that - you just sort of - you'd pretend to be - casual - but that wouldn't necessarily be being yourself" (adult).

It would be possible to pretend to be oneself if one felt 'out of sorts' and then attempted to act like 'oneself' to prevent others from noticing. However, this was not mentioned by any of the subjects.

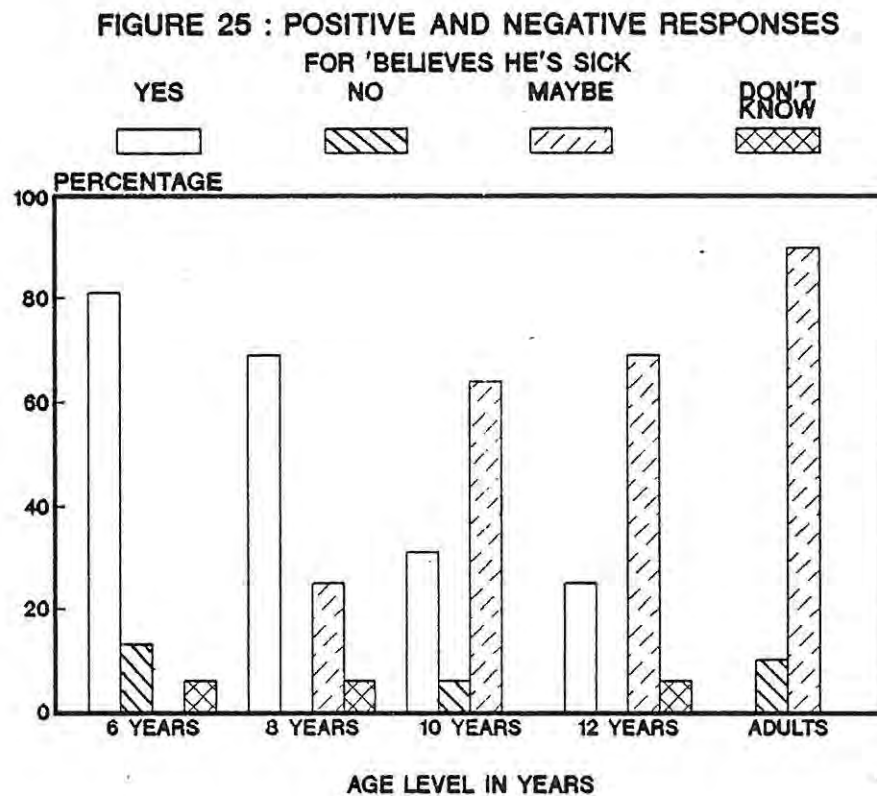
4.2.5(j) Pretends / Knows / Thinks / Believes he's sick

If John pretends he's sick, is he really sick? (Q166) gave rise to a negative response for all subjects. For Q167, If John knows he's sick, is he really sick?' all subjects except one adult answered affirmatively. The latter argued that "...his knowledge is not necessarily correct". If John thinks he's sick, is he really sick? (Q168) gave rise to a predominance of "No" answers at 6 years (69%) with possibility predominating at 8 years (56%) and increasing from 10 years. It is noteworthy that the latter option is chosen exclusively by adults. These findings for thinks he's sick can be observed in figure 24.



Justifications for answering "maybe" include: "if he feels a little bit sore he might not be sick or he might be sick" (8 years); "...he doesn't know..." (8 years); "He might be sick and he might not. He'd have to find out by a doctor if he's really sick" (10 years); "...he's not sure. You have to know what happens after, like when he goes to a doctor" (10 years); "there's a possibility that he might not be" (adult).

In contrast, 'If John believes he's sick, is he really sick? (Q169) gave rise to the following responses depicted in figure 25.



There is a definite decrease with age in the percentage of subjects who answer that he is sick (81% of 6 year olds, 69% of 8 year olds, 31% of 10 year olds, 25% of 12 year olds and no adults). At 8 years, children began to argue that believe implies possibility (25%) rather than a definite negative or affirmative and this reasoning was predominant through the 10 year olds (64%) and 12 year olds (69%) to adulthood (90%).

For both Q168 (thinks he's sick) and Q169 (believes he's sick), at 8 years children answered "maybe" and at 10 years, "maybe" or "he could be". These answers indicate their awareness of possibility. Answers

such as "he has to ask someone to examine him" (12 years) were common at 8, 10 and 12 years. Certain adults suggested that "he can make himself sick (through the belief that he's sick)". Adults used terms such as: "possible" and "probable".

One gifted child (12 years) suggested that both these questions may give rise to the same response namely, "psychomatic" (that is, psychosomatic). However, on other questions such as: 'Is to think something the same as to believe something?' (Q153), he differentiated **think** from **believe**. This illustrates the way in which the "grammar" of these words alters according to their place in the language: in certain contexts, they may be interchangeable whereas in other contexts they may be markedly different in sense.

'What does it mean to **believe** something?' (Q132) adds support to the findings for the 6 year olds on Q169 (**believes he's sick**). At 6 years, children generally regarded **believe** as suggesting the truth, for example, "someone tells you something and you...know that they telling the truth" and "believe is when you know that they telling the truth".

Some 6 year olds demonstrated acknowledgement that **believe** suggests something which is not definitive, for example, : "To believe something means that...you...don't think that I've really got it...and then I say: 'You better believe me' and they won't - they might believe or they might not" (6 years).

Although the 6 year olds answered "no" predominantly for both **pretend** and **think** and "yes" for **know** and **believe** (Q166, Q167, Q168, Q169), their answers revealed that they were aware of differences between these words on other tasks. As an example, one 8 year old answered Q132, 'What does it mean to believe something?': "like...I said to my friend I got a dog and - he said 'I believe you' - that means, like he knows - I've got a dog - he knows I'm not lying" (laughs). In this case, **know** and **believe** are both used to suggest certainty. However, for Q205, which required that they rate **know**, **believe**, **think** and **pretend** in relation to each other, this subject rated **know** as implying greater certainty than **believe**.

The "grammar" of the word **believe** is further elucidated in the answers for Q132, (What does it mean to believe something?) in relation to those answers for other **believe** tasks. Q132 did not differentiate **believe** from **believe** in (something) and the fuzzy boundaries separating these senses of **believe** is highlighted, for example, one 10 year old argued that: "um...you believe something's true...you believe in something...If you believe in it, it is true" but for Q169 (**believe he's sick**) he argued that "maybe John's sick, we can't tell". Similarly, one adult defined to **believe** as "to have a conviction" (Q132) but argued that if John believes he's sick (Q169) "he could be".

One 8 year old argued that **believe** is "...to believe something and it's not really true. Just say, like, the chair's moving and it's not true" (Q132) whereas for Q169 (**believes he's sick**), this subject answered that "maybe it's not true (and he just believes it)."

4.2.5(k) Pretends / Knows / Thinks / Believes he can fly

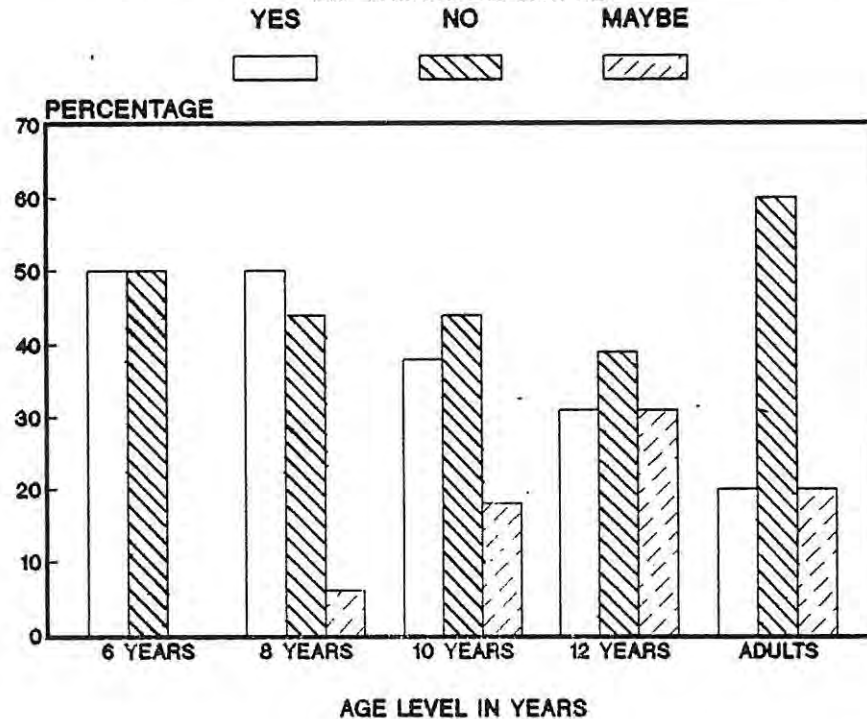
A definition provides only a partial explanation of the meaning of a word in contrast to its nuances displayed in the "grammar" of the word when applied in a variety of contexts. The following tasks in contrast to the tasks above elucidates this. Q201-Q204 are formulated as follows: 'John is standing on the edge of a high mountain and he thinks (Q201)/knows (Q202)/pretends (Q203)/believes (Q204)he can fly. Will he try and jump off the mountain or not?'

For Q201 (**thinks he can fly**) variation occurred within and between groups of subjects as depicted in figure 26, unlike Q168 (**thinks he's sick**) where a clear progression from "no" to "maybe" occurred. There is a small decrease in the subjects who say "no" with age (50% of 6 year olds, 44% of 8 year olds, 44% of 10 year olds and 39% of 12 year olds) and there is a slight increase with adults (60%). The decrease in the "yes" response is consistent across all age groups. "Maybe" has decreased slightly from 12 years (31%) to adults (15%) and "no" has increased. Think in relation to fly is more definite in sense: one would only enter into danger if certain of one's ability to fly.

Reasons varied for example, "no - 'cos it's too high" (6 years); "if he's stupid, he will, but if he's not, he won't" (laughs) (10 years); "...he'll die (laughs). He can't fly unless he's got an engine or -

an aeroplane" (8 years); "He'd be mad to, he'd fall" (8 years); "...if he really thinks he's going to be able to fly, he could fly, yes" (10 years); "not unless he really actually believes he can fly..." (12 years). One adult suggested that it would be determined "depending on the way he's been brought up to act on his thoughts..."

FIGURE 26 : POSITIVE AND NEGATIVE RESPONSES FOR 'THINKS HE CAN FLY'

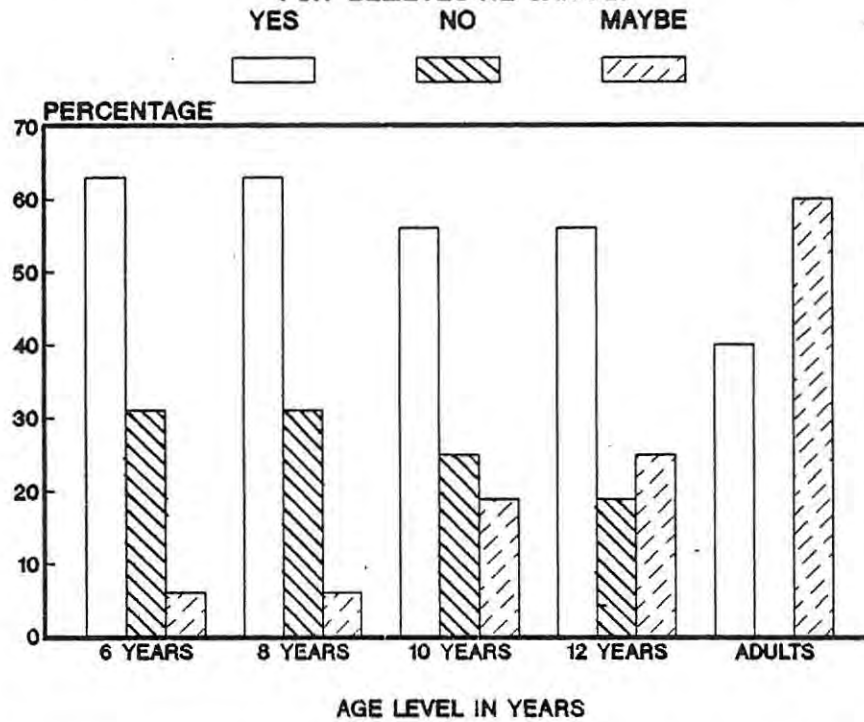


For Q204 (John believes he can fly), approximately 25% to 33% of subjects in the 6-12 year old categories responded "no" whereas none of the adult subjects responded "no". These findings are depicted in figure 27 below. We can see that already at 6 and 8 years subjects choose the "maybe" option (albeit one subject in each group) and this is selected with increasing frequency in the older age ranges becoming the predominant option (60%) for adults. There is a slight difference in the percentage of children who respond "yes". This is not found in adults and may be accounted for by the "maybe" option which is most frequently selected by them.

"Maybe" responses occurred from 10 years (19%) and minimally (6%) at 6 and 8 years unlike 8 years olds' responses on Q169. In addition, the progression is not as definite in Q204 as was the case for Q169. Unlike Q169, "yes" rather than "maybe" predominates for the 10 and 12 year olds. At 8 years, answers such as "he can't fly" and personal

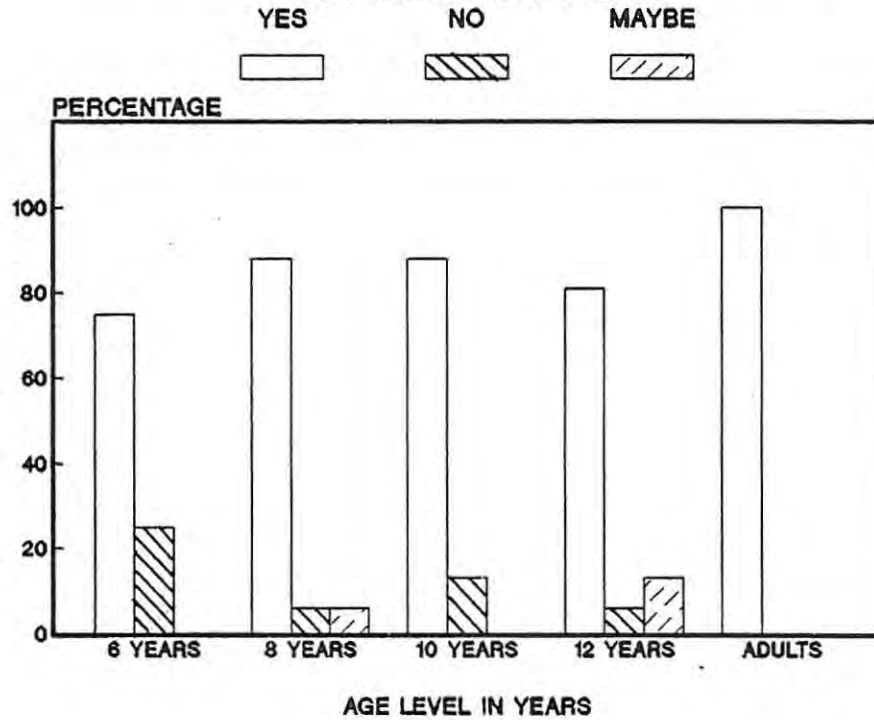
views such as "I wouldn't take a chance" occurred. Adults offered answers such as "he might".

**FIGURE 27 : POSITIVE AND NEGATIVE RESPONSES
FOR 'BELIEVES HE CAN FLY'**



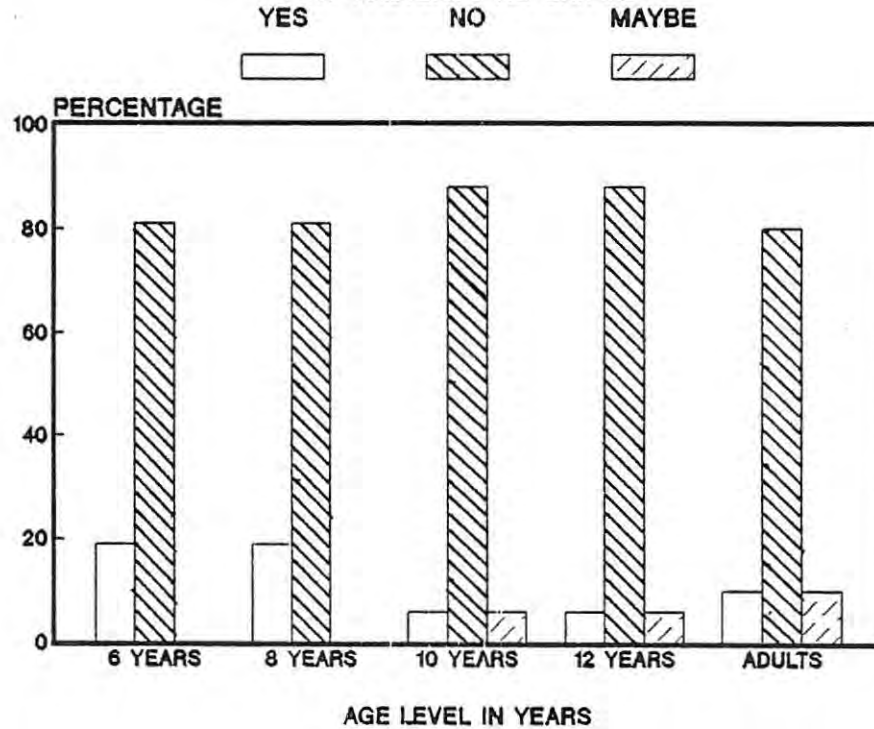
In Q202 (know), "yes" predominated throughout the groups (75% by 6 year olds, 88% of 8 year olds, 88% of 10 year olds, 81% of 12 year olds) with small variability between subjects and a unanimous "yes" response at adult level. These findings are depicted in figure 28.

**FIGURE 28 : POSITIVE AND NEGATIVE RESPONSES
FOR 'KNOWS HE CAN FLY'**



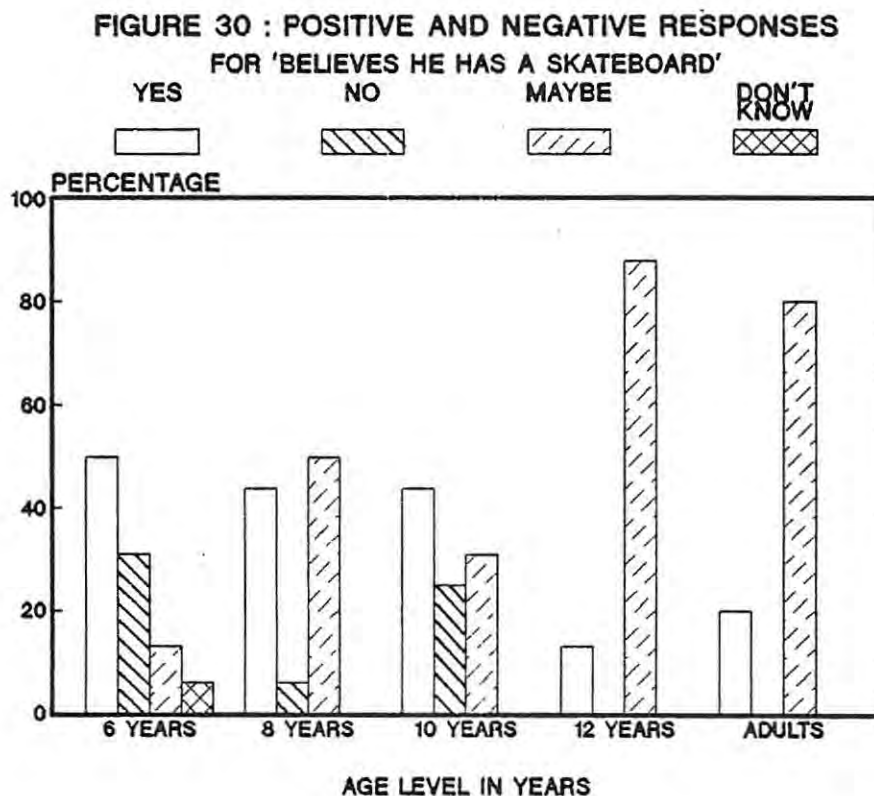
Q203 (pretend) gave rise to "no" answers predominantly for all age groups (81% of 6 year olds, 81% of 8 year olds, 88% of 10 year olds, 88% of 12 year olds, 80% of adults), as can be observed in figure 29.

**FIGURE 29 : POSITIVE AND NEGATIVE RESPONSES
FOR 'PRETENDS HE CAN FLY'**



There was small variability between subjects which reached 88% at the highest level. The findings support those for Q166 (pretends he's sick) although "no" occurred unanimously across all subjects for Q166.

4.2.5(1) Answers for Q169 and Q204 reveal differences in the "grammar" of the word believe in these two contexts. In Q204, 'If John believes he can fly', believe was evaluated by most children and by a few adults as suggesting that he will fly. There are more contextual clues provided in Q204 and circumstantial evidence is drawn on by subjects to explain their judgements. Q198 'John believes that Mary has a skateboard. Does she have one or not?' supported the findings for Q204. "Yes" predominated at 6 years (50%) with a progression to "maybe" from 8 years (50% of 8 year olds, 31% of 10 year olds, 88% of 12 year olds and 80% of adults) as can be seen in figure 30.

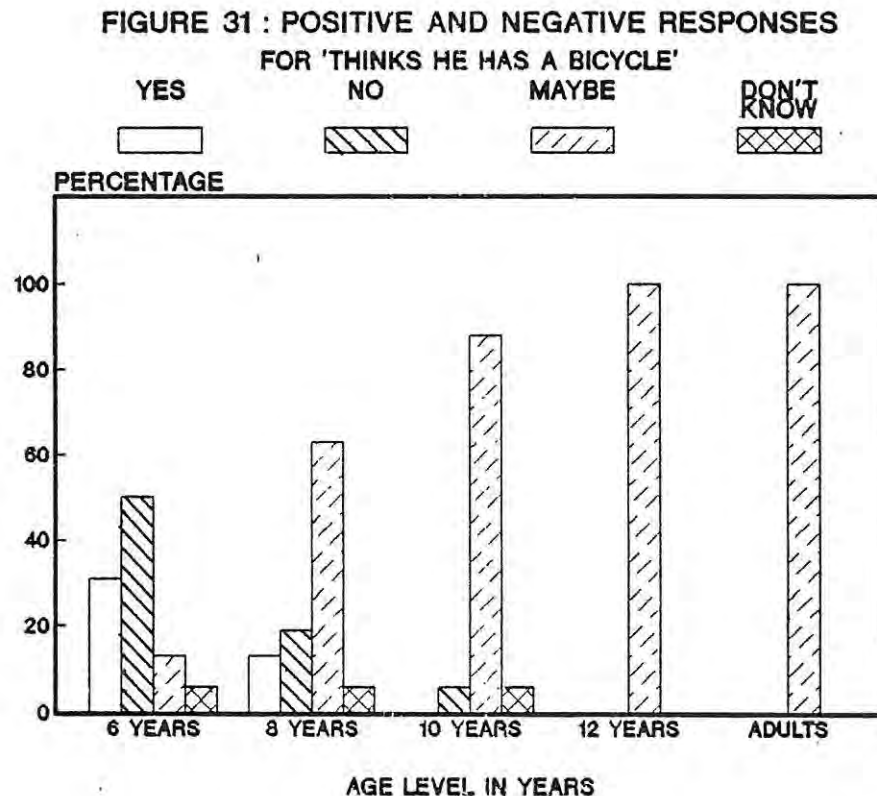


4.2.5(m) 'John thinks that Mary has a bicycle. Does she have on or not?' (Q187) adds support to the argument regarding the "grammar" of the word think. As can be seen from figure 31 below, there is a marked progression from "yes" at 6 years to "maybe" at 8 years and beyond.

One 6 year old suggested that "you wouldn't know", but without using the word "maybe".

Q168 (thinks he's sick) and Q201 (thinks he can fly) throw light on the "grammar" of the word think when think occurs in different contexts. For Q168, there was a marked increase in a response of "maybe" by older subjects, as was revealed in figure 24 (section 4.2.5j). In Q201 (thinks he can fly), on the other hand, "yes" was frequently offered and no clear progression was apparent (figure 26 Section 4.2.5k). Age, mentality, height and whether he will get killed, were all taken into account in drawing conclusions for this latter task.

Q168 (thinks he's sick) revealed a definite trend of "no" at 6 and 8 years. It appears that the context alters the sense of think and that certain tasks in which the word think is incorporated, are earlier acquired than others. This has important implications for the testing of word meaning and suggests that a very clear grading of tasks must be established. It adds support to the argument that vocabulary studies to date are limited (see Chapter 5).



4.2.5(n) For Q205, 75% of the 6 year olds and the majority of the older subjects rated certainty as occurring along a continuum progressing from **to know** (something) - **to believe** (something) - **to think** (something) and **to pretend** (something). This finding ties in with the answers for other tasks (for example, Q201-Q204) assessing these verbs. The 6 year olds initially regarded **believe** as indicating a positive response and **think** as indicating a negative response, which conforms to the hierarchy :

know
believe
think
pretend

4.2.5(o) Summary of findings for pretend in a diversity of linguistic contexts

i) It was found that **pretend** alters its sense according to the linguistic context in which it occurs, that is, there is a reciprocal relationship between **pretend** and the word that follows. These findings suggest that once the child has learned the word **pretend** in one context, we cannot assume that he is able to generalize its use to all possible contexts. He underextends his use as occurs in substantive word meaning development. It is suggested that he may need to learn the word in a variety of "language games".

ii) There were uniform responses for subjects of all ages when **pretend** was used in certain contexts (for example, **pretend to write**) and a developmental progression when **pretend** was used in other contexts (for example, **pretend to dream**). **Pretend to be in pain** yielded a diversity of responses across all subjects possibly related to the diversity of responses for other pain tasks (see section 4.3). This suggests that **pretend** may be learned at different rates in relation to different words.

iii) **Pretend** does not imply simply 'taking away' the essential from the behaviour (see Chapter 2.4.1e and chapter 5). **Think** provides a clear counter example since one can think and pretend to think at the same time. Furthermore, different aspects of the behaviour are 'removed' in different cases, as for **pretend to be in pain** (the cause is removed) versus **pretend to think**.

- iv) On certain tasks, for example, **pretend to sing** and **pretend to be in pain**, there was a developmental progression from drawing on one criterion to drawing on many criteria in the explanation. This was not found for all the **pretend** tasks.

4.2.6 Definition and fuzzy boundary tasks in relation to tasks for pretend, know, think and believe in a diversity of linguistic contexts.

There was no single definition of the word **pretend** provided by subjects within any particular age level. However, "chaff" was commonly used across the entire sample. Comparable to findings for the word **same**, subjects' definitions failed to account for the diversity of uses of the word **pretend** when applied in different linguistic contexts. Since the word **pretend** was found to alter its sense according to the word with which it co-occurs, it follows that a grasp of the meaning of two words when considered separately does not imply a grasp of their meanings when considered together in a particular context.

When subjects argued that if you **pretend to be in pain** you "chaff you've got pain", they applied their limited definition of **pretend** (namely, 'chaff') to **pain** which reveals little about how these words function when they co-occur. Definitions of **pretend** and definitions of **pain** did not remain constant when applied to tasks assessing these words together, namely **pretend to be in pain**. Furthermore, meanings of the words **pain** and **pretend** in 'What do you do when you have a pain?' (Q51) and 'What do you do when you pretend?' (Q158) did not simply combine in the tasks dealing with **pretend to be in pain** (see Chapter 5 section 5.1.2e for further elaboration on this point).

4.2.7 Summary of findings for pretend, think, know and believe

The following findings were revealed from this group of tasks:

- i) There was no single definition of **pretend** offered by subjects of any age level although "chaff" was common for all groups of subjects.
- ii) There was a progression from offering an example as an explanation to providing general explanations although general explanations were offered by children as young as 6 years of age. The

word **pretend** was commonly included in the explanations of the younger children.

iii) Contrasting two words such as **to pretend** and **to lie** led to specific facets of each word being emphasized.

iv) The senses of **pretend**, **think**, **know** and **believe** altered according to the linguistic context in which they occurred. For certain tasks, findings were similar for all age groups (for example, **pretend to walk**); for others, a developmental trend was found (for example, **pretend to dream**).

v) **Know**, **believe**, **think** and **pretend** were rated along a continuum for degree of certainty.

4.3 Pain, ache and sore

Findings for the word **pain** together with its associated words **ache** and **sore** are summarized first for the adult subjects (4.3.1) after which findings for the children are presented.

4.3.1 Findings for adult subjects

4.3.1(a) No single definition of **pain** was offered by all adults although general explanations were most commonly drawn on by adults.

4.3.1(b) Contrasting **pain** in the fuzzy boundary tasks led to an emphasis on different characteristics of the word.

4.3.1(c) The co-occurrence of **pain** with other words yielded differences in adults' explanations for the words in combination versus in isolation.

Findings for the children are presented below :

4.3.2 Spontaneous Sentences

"Grammar" errors occurred infrequently with the words **pain**, **ache** and **sore**. Errors are underlined in the following examples:

4.3.2(a) Amongst the 6 year olds:

"You get them when you - like - sick" suggests that we may have many

pains. This may be rather, a syntactical error.

"Someone told them that they had a tummy ache"

This violates the use of the word ache in that one person cannot identify an ache in another person.

"He had a face ache". The word face is not commonly used with ache. This is not entirely unacceptable but deviates from our everyday language use.

"I had the pain in my stomach". This is an error of syntax which suggests an error of "grammar". Pain does not take a definite article: unless it has already been referred to in the discourse, for example, "The pain I told you about yesterday"

4.3.2(b) Errors of "grammar" amongst the 8 year olds were, for example:

"he had a broken leg and it was a great pain" and by the same child, "When my finger got in the door, I was there - it was a great pain"

"You have a big pain"

"I feel that I've got a pain in my arm" (in this case, one would use know or omit feel altogether).

"My father's got a pain on his face".

4.3.2(c) At 10 years, the only errors that occurred were:

"Jane's toe is aching her"

"I had a sore toe ache"

"I have a pain in my stomach ache (laughs)"

4.3.2(d) At 12 years, the one error noted was : "Few people have got aches and pains". This child applied the phrase 'aches and pains' in a general context which goes against our everyday language use.

4.3.2(e) Only two spontaneous errors occurred for the entire range of 205 questions for all subjects. For Q72 ('How can you tell when someone else is in pain?'), one 8 year old argued that "...If they've got a pain and you go like that...and they start to cry, then you know that they pain". Another 8 year old stated, "I'm often like them, I have teeth ache" (incorrect use of plural form with ache).

4.3.2(f) Same pain or similar pain were used correctly in spontaneous sentences such as :

"Me and my friend have the same pain" (8 years); "Is the pain that

I've got the same as yours?" (8 years); "Me and my friend broke our legs and we had a similar pain" (8 years); "My pain is similar to yours" (10 years).

4.3.3 Definition Tasks

The questions 'What is a pain?' (Q39), 'What is an ache?' (Q40) and 'What is a sore?' (Q43) form the basis of the present discussion.

4.3.3(a) For Q39, 'what is a pain?' more than 50% of subjects in all age groups explained in general terms (57% of 6 year olds; 88% of 8 year olds; 88% of 10 year olds; 94% of 12 year olds and 100% of adults). From 12 years of age, more than one criterion was mentioned. General explanations were of the type: "when you sore in your body" (6 years); "when something's sore in you body" (8 years); "when you hurt yourself" (8 years); "when your nerves are disturbed and it hurts" (10 years); "you've got something throbbing and you sore in a place" (12 years); "it means that something's hurting you" (12 years). In contrast, an example as an explanation was of the type: "like I've got a pain in my tummy" (6 years); "just say my hand's sore and it hurts, then it's pain" (8 years); "something that's in my stomach like cramps" (10 years).

The terms used to explain pain were essentially equivalent for the 6-12 year olds. The children explained something as "sore" or that "it hurts". The adults, on the other hand, used the general terms "unpleasant", "discomfort", "a feeling" for example, pain is "A feeling or emotion experienced when you hurt yourself"; "An unpleasant feeling (which) arises from a physical or emotional experience"; "A sensation that something isn't right - causing an unpleasant feeling"; something which causes discomfort and can be relieved"; "either physical discomfort or someone who irritates you". The only 12 year old who suggested that pain is something "unpleasant" was the gifted child and he used the word "horrible" to convey this in contrast to the adult explanations: "say you've been struck in that part...and you feel sore...it feels horrible".

4.3.3(b) 'What is an ache?' (Q40) gave rise to the following qualitative responses across groups of subjects. Examples are included in table 5.

TABLE 5 : Criteria for defining an ache

Age level in years

Criteria	6 years	8 years	10 years	12 years	Adults
Explain in relation to a pain		eg. "the same"	eg. "similar to a pain but not exactly the same thing ...can't have a pain in your tooth I don't think" "it's like after a pain, it aches for a long time"	eg. "similar- they don't have to be the same thing - not the same pain...one.. hurts less"	eg. "more sort of continuous pain..pain can be short, stabbing. I think ache is more long-term..like - a prolonged pain"; "an ache is less strong than a pain - the precursor to pain.."
Use word ache in explanation	eg. "I've a aching headache"	eg. "it's an ache - like..I got a stomach ache"		eg. "my pain is aching"	
Use word sore in explanation	eg. "when something's very sore"	eg. "something sore in your arm or leg"	eg. "it's something that's sore in a part of your body"	eg. "it's like a sore you get in your body and it aches"	eg. "prolonged... and it's sore"
Use word hurt in explanation		eg. "also like when you hurt yourself"	eg. "when something's hurting you"	eg. "it starts to hurt and then it goes away and comes back"	eg. "an emotion... experienced when you hurt yourself"

The 10 and 12 year olds introduced what an ache is not, for example: "something - if it's not a cut or anything - it's just in your body, you can't see it or...you can only feel it" (10 years); and

"Like, you haven't got a broken bone and like - it doesn't hurt continually, every now and then, like - it gets sore like - you pulled a muscle, you get a stitch while you swimming, and it starts to hurt and then it goes away and comes back... (12 years).

This contrasts to 6 year old responses such as "Ache is like - when a chair creaks and like, something's broken or old"; "I've got a aching headache".

Certain subjects viewed an ache as more specific (in relation to their answers for a pain) and therefore, cited places in the body to which the word ache could be applied.

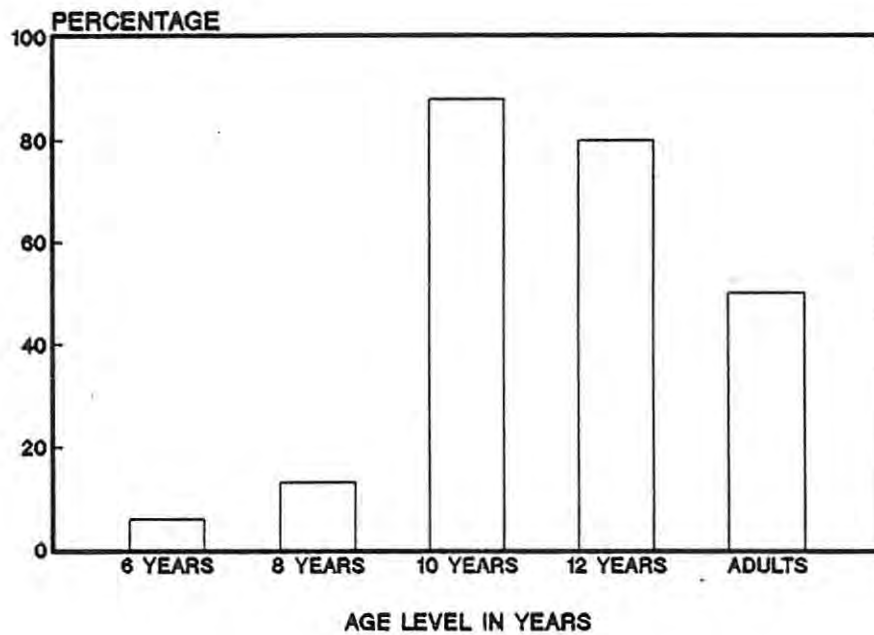
For example :

"an ache is when you're all tired and, every time you move yourself you're feeling restless and - like it's sore. You've also got pains" (12 years)

"an ache is probably the same kind of thing (as a pain) except it's normally...you really can't use it in this instance 'cos most of the time you've got a sore or a pain...an ache is something which you can only have in certain places - in your tooth, stomach, back, neck...You can use neck for ache but not in the same parts of the body as the others" (12 years, gifted).

From 10 years of age, an explanation in relation to a pain was common. As is clear from figure 32, only 6% of 6 year olds and 13% of 8 year olds related an ache to a pain compared to 88% of 10 year olds, 80% of 12 year olds and 50% of adults.

FIGURE 32 : ACHE RELATED TO PAIN ON THE DEFINITION TASK FOR 'ACHE'



This question was preceded by What is a pain? (Q39) and a response which related the two was, therefore, expected. It was of interest that so few 6 and 8 year olds drew on this.

As for Q39 ('What is a pain?') there was a progression from providing an example as an explanation to offering an example in the explanation to providing a general explanation at the adult level. These findings are displayed in table 6.

The use of examples places the task in an everyday context whereas a general explanation removes it from everyday contexts.

TABLE 6 : Strategies used in explaining an ache

Strategies			
Age level in years	Example as explanation	Example in explanation	General explanation
<u>6 years:</u>	"your head's sore"; "ache is a tummy ache"		"when something's very sore"; "it's something sore"
<u>8 years:</u>	"when you've a headache"; "something sore in your arm or leg"		
<u>10 years:</u>		"can't have a pain in your tooth. I don't think..."; "...if it's not a cut or anything...it's in your body"; "something that's in your stomach like cramps"	"not a cut or anything - just in your body, you can't see it..only feel it"; "it's something that's sore in a part of your body"
<u>12 years:</u>		"Like, you haven't got a broken bone...like you get a stitch while you swimming"; "when you're all tired and every time you move yourself you're feeling restless and - like it's sore"; "something you can only have in certain places (vs. pain)-tooth, stomach, back, neck.."	"it doesn't hurt continually, every now and then, like...it starts to hurt and then it goes away and comes back" "it's the same kind of thing as a pain except...an ache is something you can only have in certain places - in your tooth, stomach, back, neck - can use neck for ache but not in the same parts of the body as the others (gifted child)"
<u>Adults:</u>			"physical discomfort"; "an emotion experienced when you hurt yourself"

4.3.3(c) An analysis of responses for all groups of subjects combined revealed common features which separated pain from ache and sore. These findings are summarized in table 7.

TABLE 7 : Criteria separating pain from ache and sore for all subjects

Concept Quality	Pain	Ache	Sore/A sore
Physical Emotional	physical or emotional	physical only	
Description	- it's sore - - hurts/when something hurts you - unpleasant feeling	- it's sore/ very sore - discomfort	- healing after a cut - a mark/scab on your body
Specific to place		(eg.) a tummy ache/toothache	
Specific to incident			(eg.) falling/ scraping yourself/ bleeding and then healing
Able to see	Inside your body - can't see it, can only feel it	Inside your body - can't see it - can only feel it	Can see it

4.3.3(d) When subjects were retested to check for consistency of performance from one testing session to the next, four additional questions were interspersed, namely :

- When do you use the word pain?
- When do you use the word ache?
- When do you use the word cross?
- When do you use the word angry?

These questions were included to determine whether there was any difference between the answers to these questions about the use of the word (for example, pain) and the questions such as 'What is pain?'

(Q39) which do not emphasize the use of the word. Answers conformed to those for Q39, Q40 and Q43 (4.3.3(a)(b)(c) above)

'When do you use the word **pain**?' gave rise to answers such as: "like, if you've got something sore and you say: 'It's pain'" (6 years); "when somebody hurts you, you say: 'You're a pain - 'cos you hurt me'" (6 years); "...well, I don't actually ever use **pain** - I don't say 'I've got a pain in my arm' - I said: 'There's something hurting here'" (8 years); "When you in agony, when you've hurt yourself" (10 years); "when you sore" (12 years).

'When do you use the word **ache**?' led to answers of the type: "...well, I'm not that sort of guy who plays soccer and says: 'I ache here', I say: 'It's sore here'" (8 years); "when it's inside - it's not like - a cut" (10 years); "well, it's like a inside pain, a headache" (12 years).

4.3.3(e) Summary of definition tasks

i) Findings revealed fairly uniform general responses in the explanations offered by children from 6-12 years with increased complexity in adulthood (Q39).

ii) Only one criterion was drawn on by the younger children in contrast to the older children and examples as explanations decreased with age together with an increase in general explanations.

iii) Commonalties separating **pain** from **ache** and **sore** were found in the responses of all subjects combined.

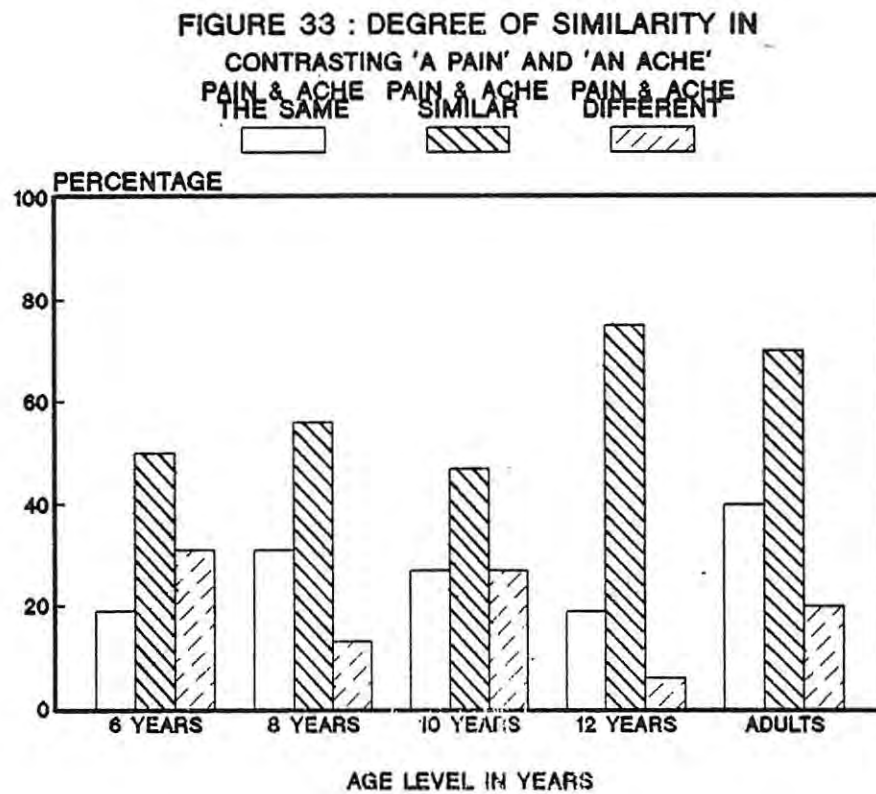
iv) **Ache** was commonly explained with reference to **pain** by 10 year olds and older subjects although the reverse did not occur.

4.3.4 Fuzzy Boundary Tasks

The following tasks are included in this discussion:

- a) Q42 : Are a **pain** and an **ache** the same/similar/different?
- b) Q44 : Is a **sore** the same as a **pain**?
- c) Q52 : Are **sore** and **pain** the same/similar/different?
- d) Q53 : Can a **pain** become an **ache**? When would that happen? and
Q63 : Can an **ache** become a **pain**? When would that happen?

4.3.4(a) Are a pain and an ache the same/similar/different (Q42) gave rise to the following responses within age groups (depicted in figure 33).



Similar was selected by a least 47% of subjects in each group, the percentage increasing at the 12 year (75%) and adult (70%) levels. This may be due to their ability to take into account numerous facets with regard to a pain and an ache. As an example, adults mentioned that they are "the same" in certain respects but "similar" or "different" in other respects: "Well, an ache and a physical pain - are the same and, an ache and psychological pain are different". This contrasts to the response of an 8 year old, namely,

"A bit similar...and...bit the same...'cos a pain is something sore and - ache is also something sore, so it's the same..."
(Why not exactly the same?) "They are exactly the same".

"Similar" may predominate because the boundaries between these words are not distinct and an answer of "same" or "different" suggests greater specificity. However, as is detailed in the section on

individual variations, the meaning assigned to each of these words (for example similar) differed from child to child and for any one child as applied in different contexts. Similar may be regarded as meaning 'the same' or as meaning 'different' within this particular context. A response of same/similar/different in isolation from the accompanying explanation yielded no useful information with regard to the child's understanding of the question though it served to highlight the fuzzy borders between these words.

A qualitative analysis of the types of responses provided at each age level is more revealing, as is clear from table 8.

There is a great deal of variation within groups. The 6 and 8 year olds mentioned one aspect of word meaning only (that is, only one qualitative category) whereas the 10 and 12 year olds and the adults frequently mentioned numerous aspects, that is, covering more than one category.

4.3.4(b) Q44 and Q52 revealed commonalties for all groups combined. For Q44 'Is a sore the same as a pain?' three main differences were raised:

- i) A sore suggests action on the part of the person, for example, when you fall you may get a sore, whereas a pain suggests something that happens to you and therefore implies less activity on the part of the person.
- ii) A sore is external whereas a pain is internal.
- iii) Pain may be the result of a sore.

4.3.4(c) For Q52, 'Are sore and pain the same/similar/different?' the following commonalties were apparent:

- i) 6 and 8 year olds consistently confused a sore with pain. They explained pain as a sore but using pain for both.
- ii) Where differentiated, pain was regarded as "more pain than sore" (example from a 6 year old).
- iii) Pain suggested something external.

TABLE 8 : Criteria selected in contrasting a pain and an ache

Age level in years

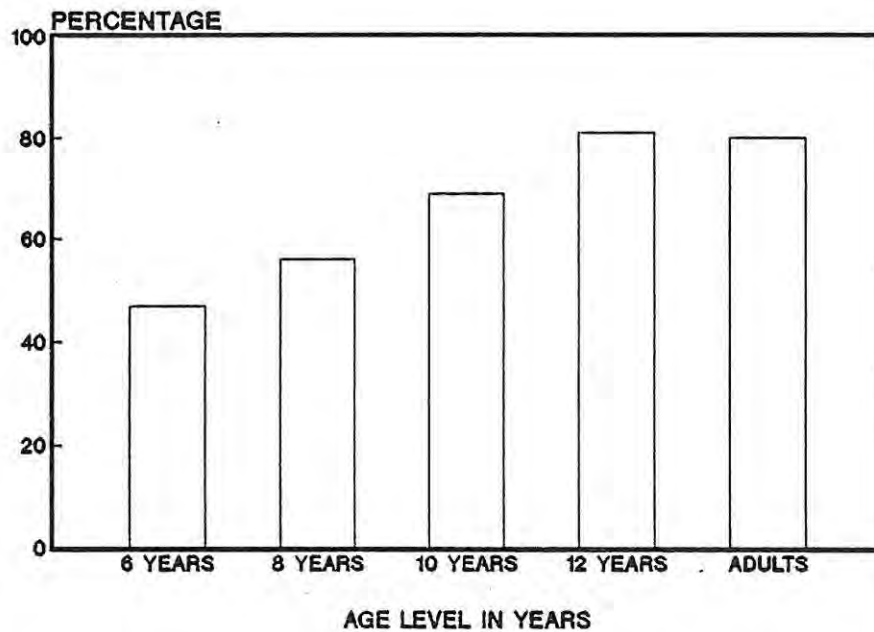
Criteria	6 years	8 years	10 years	12 years	Adults
One more sore	ache more sore	pain more sore	either ache or pain	pain more serious	
Continuous/Intermittent			ache longer	ache longer	ache continuous
Different type of thing	<p>"a pain is when something is sore and ache is when something else is sore"</p> <p>"ache has got like a sore and a pain has got a pain"</p> <p>"they both different things happening"</p>	<p>"pain is like a sore - ache is a different kind of sore"</p>	<p>"ache inside (and pain) inside or outside";</p> <p>"not like a pain, like a sting or something"</p>	<p>"pain is when you're very sore, and an ache is like when you're sort of lazy ..you could be stiff or something.."</p> <p>"ache is something which you can only have in certain places";</p> <p>"don't have to be the same kind of thing";</p> <p>"cut/a sore is pain.. tummy grumbling is ache"</p> <p>"- pain (longer/worse)"</p>	<p>"pain in knee and head aches- both physical discomfort ..but the figurative 'He is a pain', you couldn't say 'he is an ache'"</p>
Different words	<p>"a 'ache and pain" each word emphasized"</p>	<p>"but they mean the same"</p>		<p>"the words are used differently"</p>	

"Different" was most commonly selected (53% of the time for Q52) in contrast to "similar" for Q42 ('Are a pain and an ache the same/similar/different?'). There appears to be greater fuzziness of boundaries between pain and ache versus pain and sore. Examples of explanations for sore and pain are: "'cos if you've got a sore and you've got a pain, on the sore you put a plaster, on the pain you can't" (6 years); "it depends what you mean...an itchy bit sore...or a vampire bat sore..." (8 years); "No, 'cos a pain you can't see and a sore you can see..." (8 years). In contrast, an adult argued that "when you're small, they the same but then you grow out of some words". (So it's just our usage of words but they're interchangeable?). "yes".

4.3.4(d) 'Can a pain become an ache? When would that happen?' (Q53) and conversely 'Can an ache become a pain? When would that happen?' (Q63) are analysed together when they relate to each other very closely. These questions required the subject to use an example in his explanation so the aspect of example as explanation versus general explanation is not analyzed.

In most instances, where the subjects answered that a pain could not become an ache, they explained that they are "the same thing". This was not the only possible explanation, for example, one may not be able to 'become' the other because they occur in different parts of the body. However, these reasons were never offered even though they were mentioned by some subjects when asked whether a pain and an ache are the same/similar/different? (Q42). The answers for Q53 are contained in figure 34:

FIGURE 34 : PERCENTAGE OF SUBJECTS WHO ARGUE THAT 'A PAIN' CAN BECOME 'AN ACHE'



There is an increase across age levels from 47% to 80% who argued that a pain can become an ache. However, from the lack of consensus within each group, the fuzzy boundaries between these words is apparent. Examples of reasons given to accompany a "yes" response were: "...when the pain's finished" (6 years); "...like, just say I've got a pain here, then after a while it goes away and I get an ache...a different thing" (8 years); "...when you have a pain in your head and you can get a headache - when it becomes very sore" (10 years); "...like if you don't look after it, a headache can become into a migraine attack" (10 years); "...when you don't treat it" (12 years); "...it becomes worse" (10 years, 12 years).

The answers show that relative intensity is considered to be a variable. Other answers on the type of pain, for example, "no...'cos if you've got a pain...'cos if you've got a sore tummy, that means you hungry" (6 years);

"...like...say you've got a pain in your stomach and then...you eat something you shouldn't and you have, like, a stomach ache after that" (12 years)

"Yes, well after it's passed, it could be a bit stiff and every time you move your arm or something like that, you could be aching (12 years).

The factor of duration is clear from the following :

"Yes, a pain can become an ache and now there's a difference between pain and ache. If pain is one instance, ache is continual pain that goes on and on - it's really throbbing (adult);

"...yes, I suppose so...if you bit on something and you have a sharp pain in your tooth, later you find that maybe a filling has fallen out and then it's an ache 'cos it's going to be there till you have it filled" (adult);

"Yes, well, in the beginning a pain is sharp then it dies away into an ache" (adult).

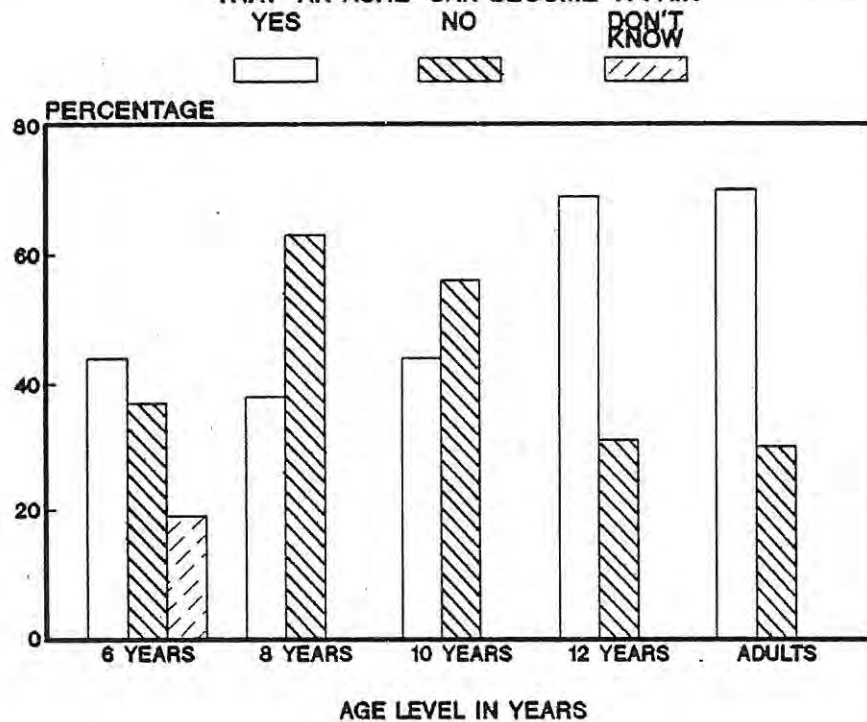
These responses contrast to :

"Yes, say I've been hit by a tennis ball, I've got a bruise and...the pain is constant and as the bruise develops and gets better it will turn into an ache and not be like a constant pain" (12 years), where pain is considered to be "constant".

It is important to note that, at times, subjects reverse the same criteria. One subject may argue that a pain goes on for longer than an ache and another, that an ache is of longer duration than a pain. There was also no uniformity in responses both within groups and between groups of subjects. Overall, adults emphasized that an ache is prolonged whereas the 12 year olds emphasized degree of intensity as the main differentiating factor.

'Can an ache become a pain?' (Q63) yielded similar results to Q53 above. Six, 8 and 10 year olds offered uniform responses with an increase at 12 year old and adult levels in those who argued that an ache can become a pain (69% of 12 year olds and 70% of adults). There was no commonality in responses both within and across groups of subjects, as is evident from figure 35.

FIGURE 35 : PERCENTAGE OF SUBJECTS WHO ARGUE THAT 'AN ACHE' CAN BECOME 'A PAIN'



No overall trend is apparent. The common answer at 6 years (44%), 12 years (69%) and adult levels (70%) was "yes" whereas "no" occurred predominantly at 8 years (63%) and at 10 years (56%). 19% of the 6 year olds answered "don't know" which was not found from 8 years. The argument for a "no" response at all age levels was that "they're the same". The explanations accompanying a "yes" response revealed a great deal of diversity as was apparent for Q53. Six year olds were unable to offer justifications for their responses. One 6 year old when asked "When would that happen" replied "anytime". In the group of 6 year olds, this is of interest in that they provide examples as explanations though not understanding what the word "example" means (see section on Example as Explanation).

Representative explanations are "...you have an ache and it starts healing" (10 years); "...if it's getting better" (10 years) both of which regard an ache as more severe than a pain. "Ache, ja! You can have a pill and it will go down to pain. It won't be as bad" (12 years); if it "came down to a pain" (12 years). In contrast, others adopted the reverse position: "...after a time...if you don't treat it or something...it could become worse and it could swell up - something

like that" (12 years). Adults also reflected these differing positions, for example, "I don't really know - I suppose it could - maybe if you've got a toothache and an abscess forms, it becomes a very...intense pain"; "ja...it could become more severe"; "...pain is more defined".

For Q53, type was emphasized as differentiating an **ache** from a **pain**. There may be difficulties inherent in the question itself, as revealed in a few responses, namely: when probed with regard to whether an **ache** or a **pain** goes on for longer, one 12 year old answered. "...an ache can be just a day, it can be for any time, as long as forever...". one adult suggested that "...an emotional ache would become a physical pain" but added that "I don't know if it really occurs or if we just use terminology like that"; and one 10 year old considered the difference between them to be 'in the mind':

"If you fall off your bike and you fracture your arm but you don't know if it's broken, it's a pain...uh...a ache...and then...if you go to a doctor and they tell you and you think it's more serious, it feels...(worse)".

For any particular child, responses on both questions Q53 and Q63 were compatible in the 8, 10 and 12 year old and adult groups. If the subject considered **pain** to be more severe (in Q53) this was reflected in his reversing the situation in Q63. One adult answered "yes" for Q53 and "no" for Q63 explaining that she could not think of an example where that situation would pertain, namely, where an **ache** would become a **pain**. Her responses were still compatible. Similarly, one 8 year old argued that a **pain** can become an **ache** "if your pain like, is like sore, so it also aches..." but an **ache** cannot become a **pain**. When probed with: ('Can you have a pain that isn't sore?' he said "I don't know"). One 10 year old also argued that "usually it starts as a pain - it's not so sore" and then a **pain** could become an **ache** but not the reverse.

The 6 year olds (excluding one subject) were not consistent across these two tasks. They were unable to offer explanations so that the influence of 'guessing' could not be discounted. It is also possible that the task included a memory factor: the 6 year olds tended to deal with each question separately whereas the older children may have recalled answering "yes" to Q53 and therefore, respond "yes" to Q63,

in other words, they process them as one. The explanations did ensure, however, that they reflect upon each question in its own right.

4.3.4(e) Summary of fuzzy boundary tasks

i) A response of "similar" was common in all groups of subjects, increasing at 12 years and adult levels. This may be due to older subjects' ability to take numerous facets of a word into account; it may be due to the fuzzy boundaries between the words assessed for example, pain and ache; or due to both these factors.

ii) The 6 year olds focused on one criterion only in contrast to the other subjects, and they tended to focus on each word individually rather than contrasting them with each other.

iii) A response of "different" was common for the task contrasting pain and sore.

iv) Whether a pain and an ache can develop into each other (Q53, Q63) yielded no commonality of responses and no developmental trend. Responses to these two questions were generally compatible for the 8, 10, 12 year olds and adults but not for the 6 year olds.

4.3.5 Pain, ache and sore in a diversity of linguistic contexts

These words are analyzed in the following contexts (see Appendix E for details):

- | | | |
|----|-----------------------|-------------------------------------|
| a) | same pain | (Q15, Q45, Q47, Q48, Q49, Q60, Q76) |
| | similar pain | (Q25) |
| b) | pretend to be in pain | (Q178, Q80a, b Q100, Q72) |
| c) | give pain | (Q77, Q85, Q65) |
| d) | feel pain | (Q129) |
| e) | "grammar" errors | (Q129, Q127, Q61, Q125) |

4.3.5(a) Findings for same pain (Q15, Q45, Q48, Q49, Q60 and Q76) are recalled from section 4.1.5. It was found that place and type of pain were emphasized equally by 6, 8 and 10 year olds with type being

mentioned predominantly at 12 year old and adult levels (Q45, Q47, Q25). In Q48 and Q49, type predominated in the responses of all groups of subjects. For Q49, all groups of subjects regarded place as an important criterion in determining whether the pains were the same or not. In Q60 and Q76, 'my pain' was interpreted as 'same pain' by the youngest subjects and as 'my pain' by the older subjects. 'Sophisticated confusion' was noted in certain same pain tasks, particularly in the gifted 12 year old and the adults. Strategies used altered from an inclusion of same together with a focus on one criterion to more than one criterion being mentioned with the word same not included in the answer.

4.3.5(b) Findings for pretend to be in pain (Q178; Q80a,b; Q100; Q72) are recalled from section 4.2.5(c). It was found that subjects of all ages readily recognised pretend pain behaviour (Q80a,b). All subjects clutched the painful area of the body and emitted noises to display pretend pain behaviour. Recognizing this behaviour in others was similarly described and laughter was mentioned as following the behavioural sequence. There was no apparent developmental trend on these tasks. However, explanations for detecting pain in another person progressed from a focus on overt characteristics such as laughter (at 6 years) to mentioning the difficulties one would experience in being certain.

It is suggested from these findings that recognizing pretend pain behaviour in another person draws on certain different criteria from those which we use to pretend to be in pain ourselves. This suggests that pain may be learned in two different "language games". The majority of subjects in all groups were able to separate out 'clutching the body part' from the pain behaviour itself and concluded that a boy displaying this behaviour while laughing was "not in pain".

4.3.5(c) Give pain :

i) 'John gave me a pain and now he wants it back again' (Q77) draws on the "grammar" of the word give in the context of give a pain. This use of give is not compatible with give in the sense of "transfer possession of..." (Concise Oxford Dictionary 1976, p.450) as would be the case if give was applied to an object. The child has most likely never heard these words used together as they never co-occur in everyday language. An adult would never say, for example, "Give the

pain back". When presented with this task, the child has to interpret these words when they co-occur. (It is not being suggested that this interpretation by the child is conscious).

Give pain was assessed in three tasks :

Q77 : John gave me a pain and now he wants it back again

Q85 : The stone gave me a pain

Q65 : He gives me a pain

The way in which the child answers reflects his understanding of these words. It was found that the children were able to use certain words (for example, **have a pain**) in different contexts but that detailed questioning about the meanings of the words indicated that their understanding of some of these words differs from that of adults. As an example, the phrase '**give a pain**' suggested to some 6 year olds that one is able to give the pain back by hitting the person back, (that is, retaliate, although some agreed that it would not be the same pain as the original one). The child failed to take into account the "grammar" of the word **give** as it relates specifically to **pain**. The older children on the other hand, answered that it is "nonsense", that is, they did not even attempt an interpretation.

Older children might hear '**give me a pain**' as a unit rather than as **give** (or, the "grammar" of **give**) in relation to **pain** (or, the "grammar" of **pain**). Younger children may not have heard this expression as a unit so they deal with each word separately. On the other hand, the word **give** takes on a particular use when applied with the word **pain**. Younger children may have understood the word **give** in relation to the word **pain** in the same way, with the same use, as when they hear **give** in relation to words such as **book**; whereas older children are able to recognize these different uses.

Consider the phrases '**give pleasure**' and '**give full marks**'. Neither of these phrases suggests that something was handed over: this criterion would be applicable if **give** were applied to physical objects only. He '**gave me a kiss**', also implies that one '**imparts something to someone else**' but **kiss** is not a physical object.

The sentence '**I gave him a pain back**' is syntactically well-formed but it is not acceptable in terms of our real world and is, therefore,

unusable. (Contrast this with 'I gave him his money back' which is acceptable). Give and pain never co-occur where give means 'transfer possession of'. It is part of the "grammar" of the word pain that it cannot be transferred from one person to another.

A detailed study of word meaning requires that we analyze the sense of the word as grasped by the child. The present findings revealed that the 6 year olds have a narrow sense of a word which becomes progressively diverse with development. This narrow perspective also reduces, for the child, the fuzziness between words that he has to deal with in word-meaning. Furthermore, the 6 year olds displayed greater conviction in answering which may be accounted for by both the narrow perspective and the lesser degree of fuzziness as well as an interaction between these two factors.

Give a pain is related to the phrase have a pain or to the "grammar" of the two words have and pain. Have in have a pain bears some similarities to have in have a book, and have a drink but there are also differences in function. When applied to a material object, have implies 'able to transfer'. It would appear that the child must have learned the word have as part of the phrase (have a pain versus have a book). Have a pain implies that the pain is in a certain place or location whereas have a book does not imply that the book is in a certain place. Have, as applied to material objects seems to form a "grammatical" group or "language game" in which the word may be learned. The older child displays his ability to use the different senses of have in these different contexts.

ii) For 'The stone gave me a pain!' (Q85) all subjects argued that John's statement was incorrect. When asked what the mother would reply to this, the majority of subjects indicated that the stone could not have 'given' him a pain. However, it is possible to conclude that the stone 'gave him a pain' because he tripped over it (nonliteral sense of give) rather than because it was active in doing so (literal sense of give). This was evident from answers at 12 years and at adult levels, for example: "That might be true...I mean, the stone's the cause of his pain" (adult). However, more frequently, subjects emphasized that he tripped over it; (Mother will say): "Don't talk junk!" (6 years); "The stone can't give you pain... 'cos you only trip over it" (6 years) (laughs); "The stone never gave him a pain - he

wasn't looking where he was going" (8 years). One 10 year old used intralinguistic reasoning, namely, "...she'll say 'he's stupid' 'cos he says 'the stone gave me a pain' instead of 'I fell over the stone' and all that". Similar explanations were offered by adults, for example, "Perhaps he should rather say 'The stone caused my pain'. A stone's inanimate, it can't give a pain away".

Other 10 and 12 year olds and adults mentioned that it "...doesn't make sense...'cos the stone didn't actually give him the pain..." (10 years); "you tripped over it by mistake, it didn't give you one" (12 years); "How can a stone give you a pain?" (12 years); "it wasn't the stone that gave you a pain, 'cos it wasn't the stone's fault but you gave yourself a pain..." (adult).

One of the constraints on the word *pain* is that it is a consequence of an activity or state. Implicit in this is that *pain* can only be applied to a purposive agent capable of making decisions (for example, a person) and that it cannot be applied to inanimate objects such as a stone. The constraints for a particular word affect the words with which it can co-occur. Children of all ages were aware that *give a pain* presupposes that whatever gives a pain is capable of an activity or state.

iii) What does it mean if we say: 'He gives me a pain?' (Q65) revealed a progressive move from a literal to a figurative explanation from 8 years of age. This is due in part to the understanding of the "grammar" of the word *give* in relation to that of the word *pain*. When the child reaches the stage at which he is aware that one does not use *give* in the sense of 'impart something to someone else' when talking about *pain*, then he suggests an alternative explanation for this task. However, in line with Hughes and Grieve's study (1980), it is possible that the child assumed that there must be an explanation for this question if it was being asked at all and, not knowing or not having heard the figurative use, attempts to explain it literally. A literal explanation was offered by only 13% of 12 year olds and then it was included with an alternative explanation, for example "... maybe someone drops something on your toe or he could give you a mental pain...and hurt your feelings".

Literal explanations were for example, "It means he punched you in the stomach or hit you" (6 years); "when someone hurts you; someone drops something on you" (6 years); "they friends and one's got pain and the other one hasn't and then he goes to his home and he gets the pain" (6 years); "...when someone's got a pain, you can catch it..." (6 years); "you can't give no one a pain - if you try and give someone a pain, you'll have to cut yourself. You must cut yourself and then - you put one half on them and one half on you" (Can you do that?) "No" (6 years); "...you could have kicked him and he got a pain" (8 years); "He can't give you a pain 'cos it's inside your body - it doesn't come out of your body" (6 years).

Similar explanations were offered by some 10 year olds, for example, "he gives me a headache or he gives me...he doesn't stop screaming": "when he's screaming or something and he gives me...no, that's a ache, a headache...I don't know". This latter subject attempted a literal explanation and then during the course of her explanation, she seemed to decide that this was not fully explanatory. She may be in a transition from literal to figurative. Other 10 year olds gave such answers as "he irritates you"; "he's getting on your nerves"; "he's bugging you".

12 year olds explained that "she annoys me all the time, constantly"; "he's always worrying you..."; "he keeps on nagging and...you can't stand it..." ; "he irritates you" (adults). One 12 year old (gifted) differentiated the two meanings clearly: "it really means that...he gives you a pain by hitting you or something. But when people say that, they mean that the person irritates them". Conclusions cannot be drawn on the basis of one subject's performance. However, this gifted 12 year old answered in a way that provides a link between the literal and figurative uses of the word **give** in this task.

This task itself does not comprise a true metaphor since it has an internal grammar and allows for the insertion of additional words as in, 'He gave me a big pain'. Contrast this with 'true' metaphoric extension as in 'He kicked the bucket'. Insertion of words as in 'He kicked the old bucket' are not acceptable in this case. However, the older children's responses suggest a metaphoric explanation of the sentence.

Figurative language involves breaking rules and, an awareness that one is doing so. The child must learn the rule first (Chomsky, 1965) and, knowing the rules, he is then able to understand and assign meaning to deviation from a rule. Vosniadou, Ortony, Reynolds and Wilson (1984) reported that children interpret metaphors literally when the correct meaning eludes them. Similarly, Wiig and Semel (1976) found that learning-disabled children typically interpret idioms such as 'she just fell apart', 'she hit the roof', in terms of the literal meanings of the words.

4.3.5(d) Feel - pain

Q129, 'Does this sentence sound OK/not? I have a pain in my head but I can't feel it', yielded a predominant answer of "unacceptable" for all age groups.

Virtually all subjects in all groups responded "no" (95% of 6 year olds, 90% of 8 year olds, 95% of 10 year olds, 100% of 12 year olds and adults). The subjects who answered affirmatively were not asked to justify their answers and it is difficult to rule out guessing as a factor. (An example of when this could occur would have provided clarification). Those who answered "no", all gave explanations which emphasized that "if you've got a pain you have to feel it" (6 years; adult); otherwise "...you can't tell that you've got a pain" (12 years) "'cos then it's not a pain" (10 years); "...you saying: I've got it but I can't feel it...I know I've got it but I don't know I've got it...Now that's really idiotic" (8 years); "Pain's a feeling as well, so of course you can feel it" (12 years).

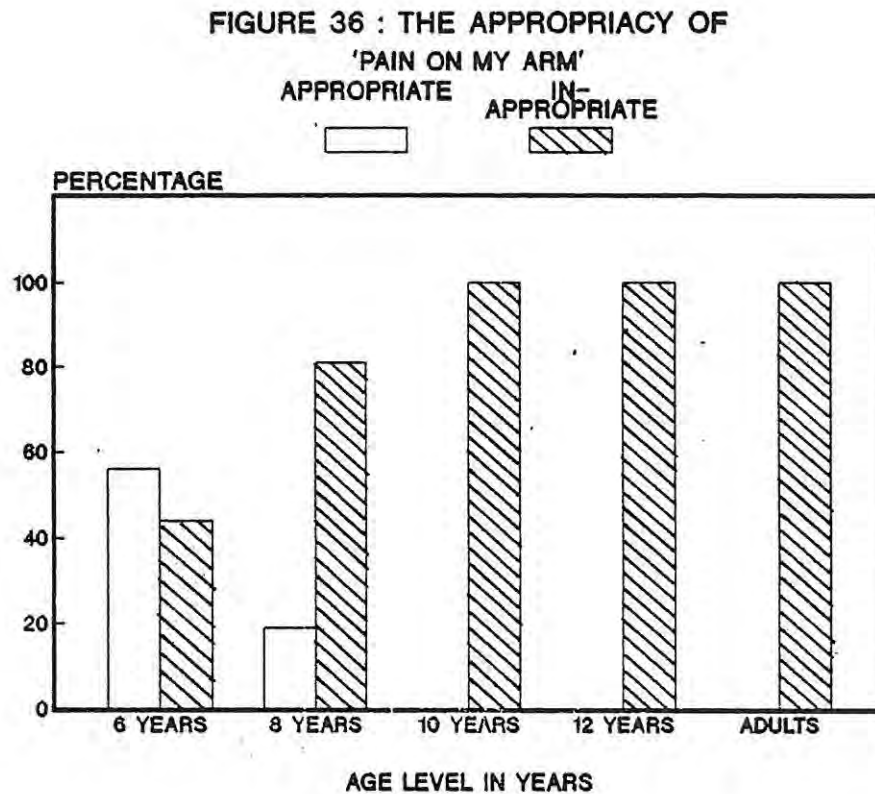
It would be of interest to examine preschool children's understanding of *feel* as it co-occurs with *pain* to establish the age at which they are not aware of the alteration of sense of *feel* in their particular context.

4.3.5(e) "Grammar" errors

i) The sentence 'I have a pain in my head but I can't feel it' (Q129) includes a contradiction: an essential characteristic of pain is that you feel it. This sentence reflects a deep violation of "grammar". It does not occur in fairytales; it does not make sense and we seem 'unable to get hold of it'. Certain subjects in the 8, 10 and 12 year old groups corrected the sentence in the following way: "I

have a pain in my head and I can feel it" which includes redundant information because pain implies that you must feel it. One 10 year old did add, "...I can feel it, it's there" which is acceptable as emphasis to counter an opposing view.

ii) 'If I say "Look I have a pain on my arm", does that sentence sound OK or not?' (Q127) yielded the following responses which can be observed in Figure 36.



As for Q129 ('I have a pain in my head but I can't feel it'), "No" predominates from 8 years of age (81% of 8 year olds, 100% of 10 and 12 year olds and of adults). However, at 6 years of age, 56% of the subjects found this sentence acceptable.

Where a subject answered "yes" but gave an explanation which indicated that it would only be applicable in certain cases, this was scored as "no" because the explanation qualified it. An example of this is "yes - only if it's outside there - like if it's a cut" (8 years). "Yes" answers may have been due to a lack of differentiation between focusing on syntax and semantics in the sentence or an error of "grammar". As an example, one 6 year old answered "yes" but when probed: "Can you see the pain?" he answered "No". Probed further "But

the sentence sounds OK?" he said "Yes". In this case, guessing is difficult to rule out.

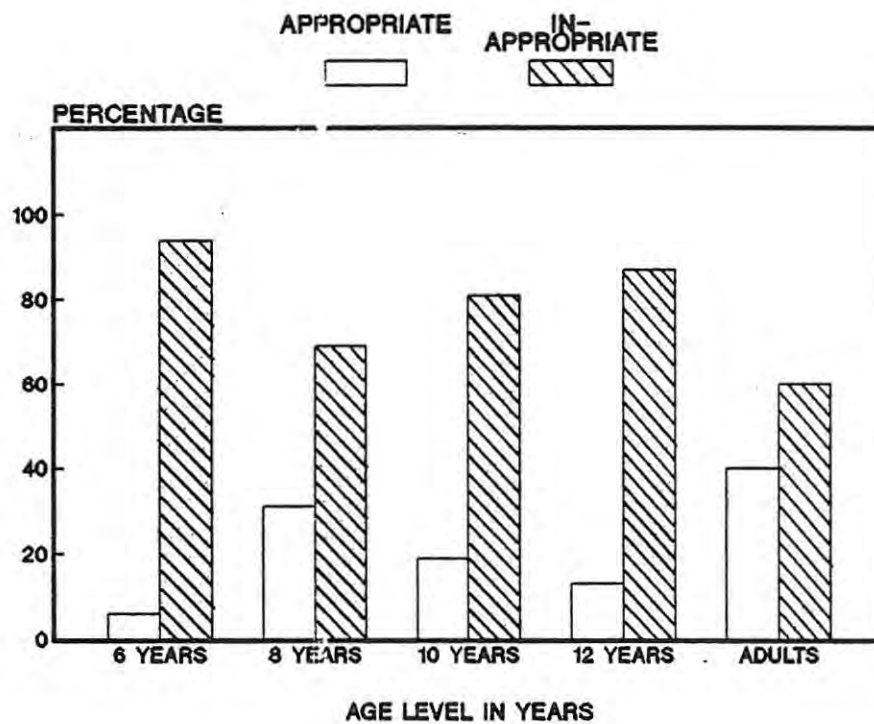
iii) Explanations for all groups of subjects emphasized that you "...can't see the pain" or pains are "inside"; it's "internal injury" (10 years). An intralinguistic answer was one such as, "Like, it can be a sore" but pain takes 'in your arm'. This task illustrates the "grammar" of the word pain and relates it to the issue of ostensive definition.

Another task dealing with ostensive definition and pain is Q61, 'Is a pain a thing inside you?' As soon as we talk about 'a thing' we tend to fall into our own preconceptions or expectations regarding 'a thing' as something that can be pointed to and this is where pain cannot be explained by means of ostensive definition. For this task, "Yes" was favoured for all groups of subjects (100% of the 6 year olds; 63% of the 8 year olds; 75% of the 10 year olds; 75% of the 12 year olds and 70% of the adults). Those who favoured a "no" response pointed out that pain could be external due to an external cause (8 years, 10 years, 12 years, adults). However, even if due to a car accident (10 years) a twist of the arm (12 years) or a cut on the body (adult), the pain will still be internal so that there is some confusion in this regard. When asked whether one can point to pain, the majority of 6 year olds (75%) answered "yes" whereas answers varied from 10 years as in "You can point to where the pain is" (10 years); and "(You) can point to the area" (adult). "No" responses were explained as "you can just feel it, like" (75% of the 10 year olds, 50% of the 12 year olds and 20% of the adults).

iv) 'Does this sentence sound OK/not?' 'I love a pain' (Q125) gave rise to the following responses revealed in figure 37.

It is of interest to note that more adults were willing to accept this sentence than were the children. However, at least 60% of all the subjects responded negatively. Explanations offered by adults were "You could say that if you were referring to a person as a pain"; "...it's grammatically correct"; "...sometimes it sounds unusual but it could be true, like, a toothache is sometimes - pleasant". They have drawn on examples beyond the immediately obvious and suggest possible situations where the sentence may be acceptable.

FIGURE 37 : THE APPROPRIACY OF 'LOVE A PAIN'



Explanations for those who answered in the negative were equivalent in content for all age groups, for example, "no - 'cos you can't love a pain -'cos if a pain's making you sore, you can't love it, 'cos it's making you sore" (6 years). "...'cos you can't love it - you ...not happy that you've got pain" (6 years); "no, 'cos a pain hurts" (6 years); "you hate a pain" (6 years). The use of "can't" was apparent in the answers of 8 year olds as well. At 10 years, subjects prefer the word don't which suggests that it is possible to love pain though it is not common, for example, "You can say that but no one likes pains and things like that" (8 years, 10 years); "...you can't - well, you could like having pains but I don't think anyone would like having pains" (8 years).

The use of "could" was drawn on by 12 years olds, for example, "...the pain is sore - you (laughs) couldn't love it"; "You could have a pain but you couldn't love it when you've got pain"; "You could talk about a person who everybody hates...". At the 12 year level, the subjects are likely to use the more tentative form of the modal, indicating perhaps, a weakening of the possibility (Macdonald 1985). These answers reflect an aspect of the "grammar" of the word pain, namely, that it is something unpleasant. It would then follow that "most sensible people don't like to be in pain" (12 years) and that,

therefore, one "couldn't" be in pain. This interpretation could be equally applied to the 6 and 8 year olds though it is of interest that none of the 10 year olds used the word **can't**. This suggests that the reasons for using this word may differ for the youngest children in contrast to the 12 year olds. The explanations given by the adults were equivalent to those of the 12 year olds although they used more general terms, such as: "...pain is usually an unpleasant experience"; "...painful is discomfort".

4.3.5(f) Summary of findings for pain in a diversity of linguistic contexts

i) **Pretend pain** was readily recognized in others and displayed by subjects of all age ranges.

ii) **Same pain** suggested that there must be two pains but resulted in 'sophisticated confusion' at adult levels.

iii) **Give pain** revealed a progression from focusing on **give** in the sense of 'transfer possession to someone else' (Concise Oxford Dictionary, 1976) to a figurative explanation in the older subjects.

iv) **Feel pain** was answered correctly by subjects of all ages, with older children differentiating the senses of **feel** (that is, 'touch' versus 'experience' it).

v) Tasks which included "grammar" errors yielded no apparent trends.

4.3.6 Definition and fuzzy boundary tasks in relation to tasks for pain, ache and sore in a diversity of linguistic contexts

4.3.6(a) There was no single definition of the words **pain**, **ache** and **sore** provided by subjects within a particular age group although definitions were more uniform across groups than for **same**.

4.3.6(b) Together with the words **same** and **pretend** which gave rise to no single definition, the co-occurrence of **same** and **pain**, or **pretend** and **pain**, yielded changes in explanations for these words when they co-occurred. Definitions provide only a partial explanation of the words meaning in contrast to its nuances when applied in different contexts.

4.3.6(c) Tasks for pretend and pain in contrast to the task pretend pain revealed interesting findings with regard to the "grammar" of words. For 'What do you do when you pretend' the common answer was "chaff". Even though the younger children give an example as an explanation (for example, "pretend to sleep") they are later able to apply pretend in another context (for example, "pretend to be in pain"). For 'What do you do when you're in pain?' the common answer was either "cry" (a physiological consequence) or "go to the doctor" (a practical consequence). 'How would you pretend to be in pain?' yielded "hold the painful area and moan" or "pretend to cry". If one combined the answers from the pretend task and the pain task, it gives rise to "pretend to cry" or "pretend to go to the doctor" which is only a partial explanation: "pretend to cry" could be misinterpreted as something other than that one is pretending to be in pain. Holding an area of the body and crying is less likely to be mistaken for something other than what is intended. To 'pretend to go to the doctor' may suggest in a role play that one is in pain but this situation would not commonly be drawn on in 'pretending to be in pain'. A combination of the definition tasks: 'What does it mean to pretend?' which gave rise to "chaff" and 'What is a pain?' which gave rise to "something sore", would yield: "chaff to be sore".

No subject argued that we cannot pretend to be in pain as was common for pretend to walk and mentioned occasionally for pretend to sing. Considered together, these tasks indicate that the "grammar" of pretend alters according to the linguistic context. In certain contexts, pretending is not possible; in other contexts it is. In certain contexts (for example, pretend to be in pain) something essential to the situation is removed, for example, the cause of the pain and one simulates the behaviours one would carry out if one were in pain. For pretend to sing, however, sound may be removed, again, a characteristic essential to singing itself. However, it is possible to pretend to sing by actually singing but altering one's voice.

4.3.7 Summary of findings for pain, ache and sore

4.3.7(a) Strategies varied from examples as explanations and only one criterion being drawn on to general explanations and more than a single criterion being drawn on in certain tasks.

4.3.7(b) Uniformity or variability of responses occurred across all subjects for the fuzzy boundary tasks.

4.3.7(c) There was no single definition of the words **pain**, **ache** and **sore** and differences were found in performance at different age levels depending on the linguistic context in which the word **pain** occurred.

4.4 Feel, see, do and interrogative form where

These words were analysed in a diversity of linguistic contexts, that is, in relation to the words in the three previous sections.

4.4.1 **Feel** was examined in the following tasks:

a) It will be recalled that all subjects were aware that one has to feel pain in order to have pain at all (Q129, section 4.3.5(d)).

b) Can you feel your dreams? (Q195).

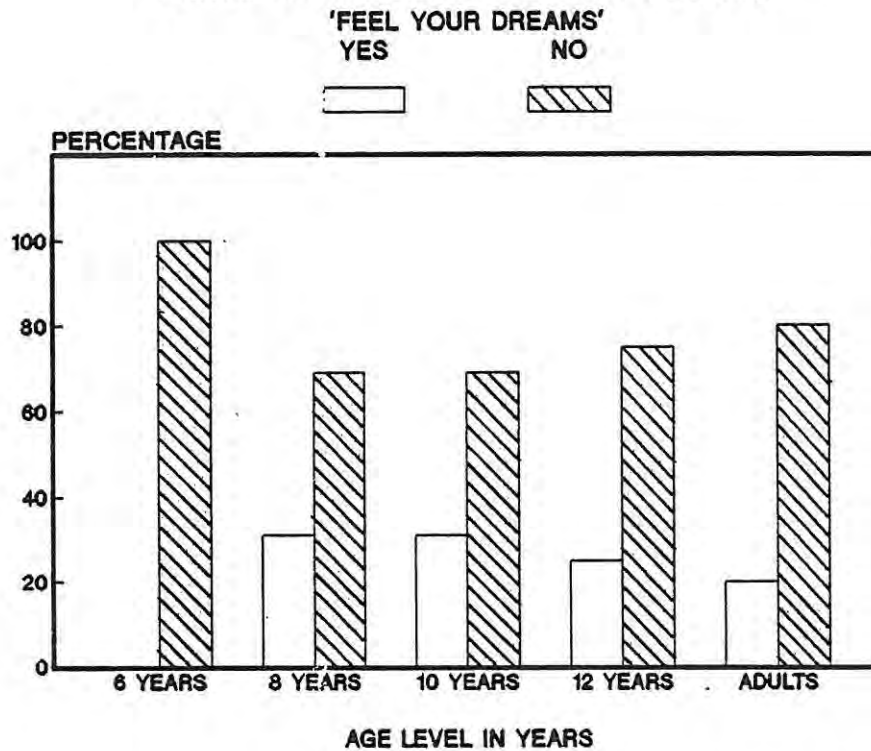
c) I feel an anger. 'Does this sentence sound OK or not?' (Q118).

4.4.1(b) Responses for Q195 ('Can you feel your dreams?') are revealed in figure 38.

All the 6 year olds interpreted **feel** in the sense of 'touch' and argued, for example: "no, because it's a dream - it just comes out of your head". From 8 years, **feel** was interpreted by some children (though a minority in all groups) as 'experiencing an emotion'.

From 10 years of age, subjects who responded positively regarded **feel** in this context to mean something other than 'touch', for example "you feel like you on a boat, you sitting on a boat and a shark's chasing you" (10 years); "like, if it's a sad dream, like you could get like your heart could be all sore" (10 years); "well if it's a scary dream

FIGURE 38 : ACCEPTANCE THAT YOU CAN



you could shake" (10 years); "yes I suppose - if you have a dream about something scary, you can feel scared" (12 years, gifted); "Yes, I'd say - if you've got a pain in your arm - say if you've got a sore arm while you dream and then you dream about somebody hitting you on the same place then you think that you felt the dream" (12 years); you feel the movement in the dream "like if a chair falls and you jump up" (12 years). Subjects at 10 and 12 years mentioned having a nightmare and 'feeling' it, for example, "well - no - like if you having a nightmare...like say someone is about to stab you, well then you could suddenly wake up and go...start screaming or something like that but you can't usually feel..." (12 years).

Examples from piloting a small sample of preschool children confirm these findings. When asked: 'Can you feel your brother's pain?' and 'Can your brother feel your pain?', one 4 year old argued "I can't

feel my brother's pain (but) he can feel mine - (I think)". This may be due to his egocentric frame of reference. Another 4 year old argued that he can feel his brother's pain: "If I put my hand there (on the injured knee), then I can feel the pain running..."

4.4.1(c) Further confirmation of these findings comes from another task: 'Does this sentence sound OK/not? I feel an anger?' (Q118). Reasons varied from an emphasis on an **anger** to an emphasis on the word **feel**. Only the latter are of relevance to the present discussion. Examples of such explanations are:

"yes...you feel an anger - no - 'cos you can't **feel** anger you can **fear** it but you **feel** it. I fear anger - I'm scared of it"
(12 years)

"no - 'cos you can't **feel** anger - it's something inside you - you can't feel it - but it just comes out - you feel angry but you can't feel it with your hands - you can feel it inside you but you can't touch it" (12 years)

These two subjects then gave as a corrected sentence: "I feel angry" without acknowledging that the word **feel** had been included once again and that, therefore, their explanation failed to hold. The adult subjects seemed to be arguing about the objective status of an **anger**.

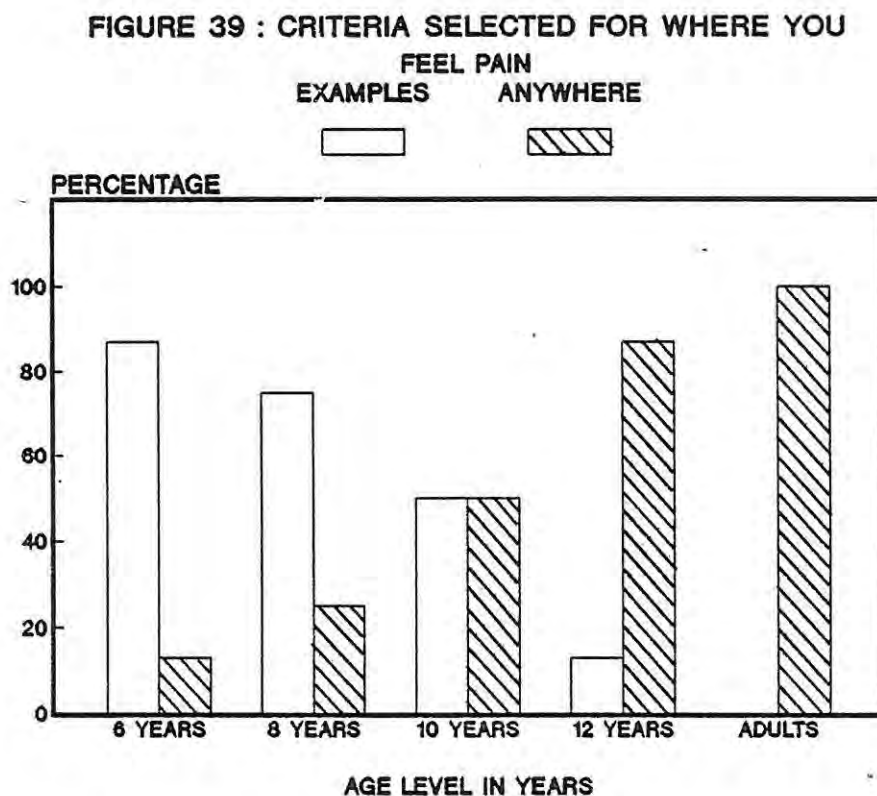
4.4.2 Where

The "grammar" of the question form **where** is assessed in relation to the "grammar" of **think** (Q160), **feel an ache** (Q75), **feel anger** (Q62), **feel a pain** (Q54), and **dream** (Q147).

4.4.2(a) 'Where do you feel a pain?' (Q54) and 'Where do you feel anger?' (Q62) deal with the child's grasp of the "grammar" of **where** in relation to the "grammar" of **pain** or **anger**. To the question 'Where do you feel pain?', the child does not answer in **the kitchen**. He has an understanding that **where** in the context of an **ache** takes an answer in **the body/head** and so on. Similarly, with the question: 'Where do you feel anger?'. If these questions were phrased in a slightly different way, for example, 'Where did you first feel anger/pain?', the answer could quite realistically have been "(When I was) in the kitchen". Yet, for the questions as phrased in this study, "in the

kitchen/lounge" was never offered as an answer. This type of answer may appear ridiculous but this is only because we so take for granted that the child would never answer in this way. Yet, we have no reason to assume that the child would not answer in this way. **Where** in 'Where do you feel anger?' could have been a different word (that is, formed by different letters) from **where** in a question such as: 'Where did you first feel this anger/pain?'

4.4.2(b) Responses for 'Where do you feel pain?' (Q54) can be observed in figure 39 below.



This question was answered with varied examples such as, "in my side, my tummy, my leg" (6 years); mentioned by any one child or "anywhere". Examples were given by the majority of 6 years olds (87%), and 8 year olds (75%). Fifty percent of the 10 year olds gave examples and this decreased in the 12 year olds (13%). "Anywhere" was the answer offered by the remaining children in each group and by the majority of 12 year olds (87%) and adults (100%).

4.4.2(c) 'Where do you feel an ache?' (Q75) gave rise to equivalent answers to Q54 above but specific parts of the body were emphasized, for example, head(ache), tooth(ache) and back(ache). There was again a progression to answering "anywhere" although 12 year olds and adults also commented that an ache is usually associated with particular parts of the body.

Pain can be used as a count or a mass noun. Nouns such as **pain** are able to shift from mass to count which involves a shift in sense according to the linguistic context in which it is used, for example, 'she was in some pain' or, 'pain is unpleasant' includes **pain** as a mass noun. In, 'I have a pain in my head', **pain** is used as a count noun, as in 'some pains are intense'. This contrasts to the word **anger** which can only be used as a mass noun and part of its "grammar" is that it is not localized to a specific part of the body.

4.4.2(d) Q62, 'Where do you feel anger?' deals with the question of localization. This question is, as a result, deliberately misleading. Answers varied within and between groups of subjects as can be seen in table 9.

There is no developmental progression as for **pain** (Q54). Q62 was asked twice (Q73) as a consistency check for a small group of subjects in all ages. Only three out of the 19 subjects tested (15%) were inconsistent (see Appendix H).

Pain is always specific for the speaker but not for the listener. For this reason, one can say 'I have a pain' but not 'I have the pain'. The can only be used if the referent is specific for both the speaker and the listener (Brown, 1973). No child made an error of this type. This also relates to the count / mass distinction. **Pain** takes the indefinite article or no article at all but it is specific to a part of the body.

TABLE 9 : Responses for where you feel anger

Adults offer more than one location or possibility.

Location	Age level in years				
	6 years	8 years	10 years	12 years	Adults
head	25%	50%	25%	38%	38%
whole body/ everywhere	25%	13%	25%	13%	25%
Mind			13%	25%	13%
Brain				25%	
Heart					25%
Tummy	13%				
Speech			13%		
Can't tell					13%
Don't know	38%	38%	25%		

4.4.2(e) 'Where do you think?' (Q160) gave rise to "in my head" with "brain" or "mind" being suggested from 12 years of age. "Mind" is metaphysical in comparison with "head" which is physical. Five to six year olds are confused if asked whether their minds and brains are in the same place. One child said that his mind was in his heart (MacDonald, 1985). It is of interest that a preschooler (4,11 years) argued in response to this question that he thinks "on the right side of my head". The following exchange between the child (K) and the experimenter (E) reflects an error of "grammar":

- E: "What does it mean to think?"
- K: I'm thinking in here (points to head) - uh -
I think in that side of my head (points to
right side of head)
- E: "You don't think in that side?" (points to
left side)
- K: No, only when I'm thinking of something on
that side (left side). When I'm thinking
of something on this side (right) then I
think from this side (right) of my head
- E: "If you're thinking of that yellow box
(positioned on his right), which side to
you think on?"
- K: - uh - that side (points to right side of
head)
- E: "And if you're thinking of mommy?"
- K: - that side - behind me (points to the back
of his head)
- E: "Why's mommy at the back there?"
- K: (looks behind him towards the entrance of
the school). No, my mommy didn't bring me
to school, my father brought me to school
- E: "And if you're thinking about daddy, where
do you think?"
- K: also there (points to the back of his head).

It is part of the "grammar" of the word think, that you do not think on different sides of your head. It is not canonical to say that we think in the right side of the head. This child has not understood the type of answer that one is able to give to the question 'Where do you think?'

The answers of the older children confirm that it is part of our Western tradition to say that we think in our head(s). The phrasing of this question may be misleading and may not, itself be canonical. The question forces the subject to answer 'in...' which may be

confusing in itself. However, it is important that all the primary school subjects answered this question, (even if it seemed misleading), in equivalent ways.

4.4.2(f) 'Where do you dream? (Q147) gave rise to the following answers: At 8 years 75% of the children interpreted the question **where** in terms of 'place outside of the body', for example, "anywhere...when you sleep, when you at movies..."; "well, they can happen in a shopping centre or in your bed". The 6 year olds were given the probe ('Where in your body does it happen?') together with the initial question so that this tendency is not evident in the 6 year olds. It is of interest that from 10 years, **where** in relation to **dream** is considered to refer to 'place in the body' (without additional probes) for example, "in your head" (44%) with further differentiation and specificity into "your brain" (50%) occurring at 12 years of age. Adults predominantly answered "in your head" (70%). It is possible that if the question was formulated as 'Where does thinking take place?' or 'How do you think?', they may have answered "in the mind". These answers are interesting in relation to Piaget's studies which asked children this question. Reinterpretation of his findings in relating to "grammar" is presented in Chapter 5.

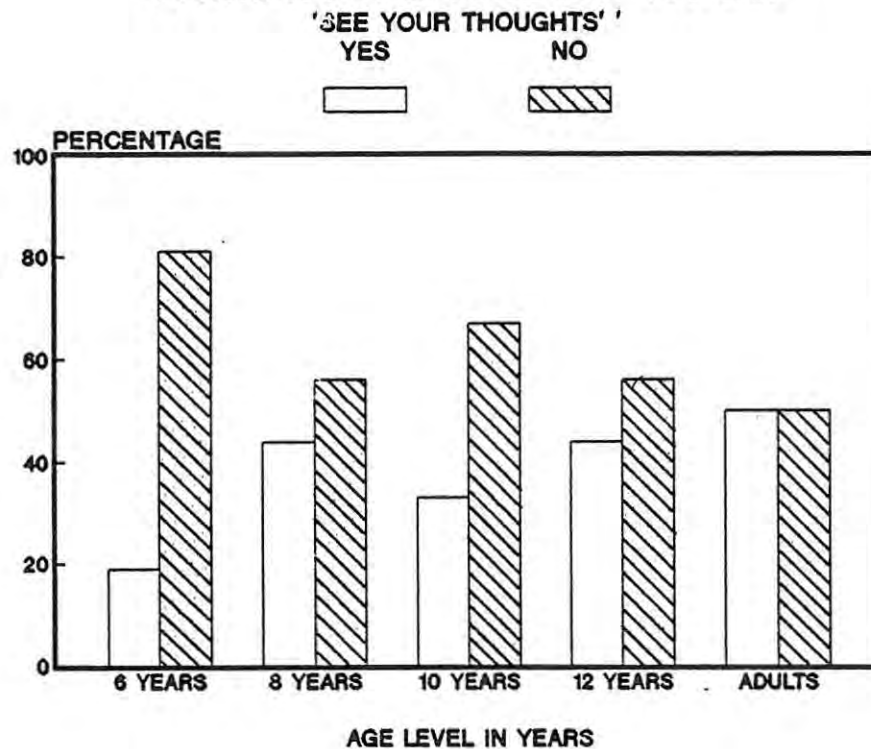
4.4.3 See was assessed in two tasks:

- a) Q134: 'Can you see your thoughts?' and
- b) Q156: 'Can you see your dreams?'

4.4.3(a) For Q134, 'Can you see your thoughts?', "No" predominated for all the children (81% of 6 year olds, 56% of 8 year olds, 67% of 10 year olds, 56% of 12 year olds) with "yes" and "no" being equally suggested by adults. These findings can be observed in figure 40.

This task deals with the "grammar" of the word **see** as it relates to **thoughts**, that is, **see** takes on a particular sense in this context. The younger subjects failed to make clear the alterations in sense, for example, "Yes - (you can see them) in your head" (6 years); "um...only when you close your eyes" (8 years and 10 years); "Yes, but not right in front of you like a TV screen" (10 years).

FIGURE 40 : ACCEPTANCE THAT YOU CAN



From 8 years of age, subjects began to qualify their answers emphasising that one cannot see them in the 'usual sense' of see. These answers were scored as "yes" since the question was answered affirmatively. Their explanations qualified this.

Examples of explanations are:

"...in your head...like.. (it's) blurred, you can't really (see it)"(10 years); "no...'cos you can't see inside your head...only if you've got supertonic eyes" (10 years); "In your head you can but not from your eyes" (8 years); "No, but you can see it in your head (8 years); "you can picture them in your head but you can't see them" (12 years); "...when I'm working out a sum or something, I sort of see the numbers but they're not really there..." (12 years, gifted).

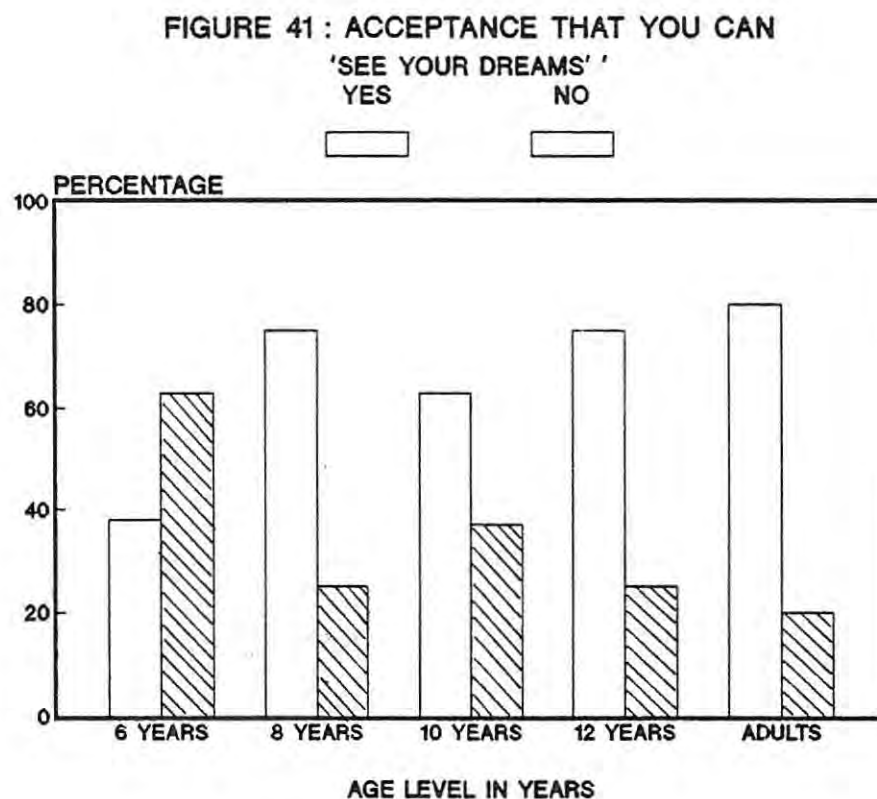
It is clear that a 6 year old may answer "yes - in my head" where an older child would answer "no - it's in your head but you don't actually see it". Their understanding of the "grammar" of the word see in this context, affects the conclusion drawn.

Adults used words or phrases such as: "visualize", "have a vision", "imagine them in your mind". They explained that "...often you can

get a thought but you can't describe it. If you can see it, you would be able to describe it". One adult explained:

"Yes, sort of, in a way (you can see them). You could form a mental image but if it's a concept...you don't...I suppose you do write it out in your head but you don't actually visualize the words...It's a subconscious thing, something you're not aware of - you don't see a lot of words across a page".

4.4.3(b) 'Can you see your dreams?' (Q156) gave rise to a predominance of "No" responses at 6 years of age (63%) with "yes" predominating at 8 years (75%), 10 years (63%), 12 years (75%) and at the adult level (80%). These findings are depicted in figure 41.



As for Q134 above, from 8 years of age those subjects who answered affirmatively altered the sense of see in accordance with the word **dream** with which it co-occurs. Examples of explanations are: "...in my mind um...but I can't see them..." (8 years); "Yes...if you visualize them but you can't see them...you think about them., you see them in your head..." (10 years); "you can visualize them in your brain but you don't actually see them with your eyes" (12 years,

gifted); "...like you can't see them over there" (points ahead). "You can picture them in your mind" (12 years); "not really, well, you can sort of see them in your mind...not really in front of you" (12 years). Similarly, at adult level: "...in the subconscious, when you're asleep"; "you can see pictures but that's while you're asleep so they're not like you see everything else"; "yes, definitely...you seem them - not through your eyes - in your mind's eye you see them"; "not in the full sense of the word - metaphysically you can - images are passing before you, but it's not clear".

These answers reflect that **see** takes on a different sense in relation to **dream** in contrast to, for example, **see a chair**. From 8 years of age, a greater number of subjects in each group answered that one can see one's dreams and explained this altered sense of **see**. It would appear that **see** in relation to **dream** requires a different learning process from **see** in relation to words denoting concrete objects: a different sense of **see** is involved. There may also be an innate ability in children to generalize the use of **see** (and of all words) to numerous contexts. To date, this generalizing ability has been taken for granted by researchers.

4.4.4 Do

The "grammar" of the word **do** is revealed in relation to the "grammar" of **be in pain**, **pretend**, **think** and **be angry** (Q51, Q158 and Q161 and Q46).

Children in all age groups displayed the ability to understand the word **do** differently when it co-occurs with **be in pain**, **think**, **pretend** and **be angry**. However, the word **think** 'demands' a greater 'shift' in sense when compared to the other verbs. The 6 year olds failed to make this shift. They applied **do** in the sense of 'action' across all these linguistic contexts.

4.4.4(a) For Q51 'What do you do when you have a pain?', certain children amongst the 6 year olds, 8 year olds and 10 year olds mentioned "cry", that is, an internal physiological response, the effect of the pain itself. However, the situational or broader consequences such as "go to the doctor", "take medicine", and so on, predominated for all groups of subjects. At all ages, alternatives

were offered depending upon the nature of the pain, for example: "I tell my mother - she gives me medicine or - if it's sore on my leg, that I hurt myself and it's a pain, then my mother closes it up" (6 years), although 6 and 8 year olds commonly offered a single solution only.

From 10 years of age, do was interpreted as: "I might not show it or I might show it" (10 years); "I try not to show it...'cos I don't think it's any use..." (12 years); "I usually wait for it to pass" (12 years). Adults suggested that one "try to relieve it"; "...relieve the pressure or put pressure on"; "try to get rid of it"; "if physical...do something medical, if emotional, speak about it..." (adults). Many adults separated out physical and emotional pain in this regard.

The "grammar" of do in relation to be in pain is very different from the "grammar" of do in relation to think and pretend as illustrated by the answers to these tasks below.

4.4.4(b) 'What do you do when you think' (Q161) was a difficult question for subjects of all age groups. The 6 year olds focused on overt characteristics and displayed conviction in their answers, for example, "you stand still and - you just think"; "like you just stand still and think"; "you sit down"; "close your eyes".

Some of the 8 year olds, although less definite in their answers than the 6 year olds, focused on visible characteristics, for example, "I don't know um...like when you just...like when you, like, like - I don't move anywhere I just stay in one place like I'm just like this"(sits and looks into space); "you don't talk"; "you can go like this (head on hands), you look at one thing for a long time and then you look at something else". The stereotyped posture of 'head on hands' was mentioned by a few subjects. Others moved away from that which is observable, for example, "when you doing maths then you think"; "you be clever". One 8 year old gave an answer that paralleled closely (in content) that of older children, namely, "you try to remember something and then you thinking of that, what you've done or what". However, the language used to express this contrasted with that of the 12 year olds, for example, "you pay careful attention to what you want to do, if you gonna do it or not".

The 10 and 12 year olds displayed confusion in answering this question, for example, "you thinking about something, like...in a test - I can't explain - like, if you don't know the answers like you sit and think - you want to try and find out something" (10 years); "you...you think about something, if it's right or wrong, or if its...you think about something" (12 years). The 10 year olds still mentioned overt characteristics, as in, "I sit down, I just don't talk, I just keep quiet and sit there or I just walk around"; "you don't talk to like anybody, you just like, sit or stand".

12 year olds mentioned 'sitting still' or 'standing still' as did the younger subjects. The 12 year olds progressed from an emphasis on overt action to covert behaviour.

Adults provided more sophisticated answers in comparison to the 12 year olds, for example, "you putting your thoughts together and you come out with an answer to a problem"; "it's a mental process that you carry out"; "you arrange ideas and things that you're going to do"; "you concentrate on something you don't know the answer to and you try and work it out..." The "grammar" of the word do is highlighted in the following answers: "...well, you always think - so you can be doing anything" (adult); "...I don't think you do anything specifically when you think..." (adults). Another adult asked "(you mean) physical actions or...?" then laughed and answered that "there's no way of doing it...thoughts come to your mind". These three subjects interpreted do in an active sense but, when applying it to think, they offered a different answer from that of younger children, namely, that you do not do anything specific when you think.

4.4.4(c) 'How do you know when someone is thinking?' (Q131) yielded a great deal of diversity both within and between groups of subjects. The 6 and 8 year olds concentrated on facial expression (overt) in their explanations, either "when they just staring" or showing by means of a gesture, that the person will stare into space (50% of 6 year olds; 50% of 8 year olds). One subject (6 years) qualified this, explaining that sometimes "you don't" (know). A broader context was included by 38% of these younger subjects: "'cos they say...and they'd be angry...'cos they can't think properly when someone's talking" (6 years); "you talk to them and they don't answer" (8 years); "they won't listen to you...they'll just keep on thinking" (8 years).

At 10 years, facial expression was mentioned but 75% of the subjects drew on a broader context in their explanations: the person's effect on others was mentioned rather than "staring into space". Examples of such responses were: "you can see they concentrating - like if you say, 'Come here' they won't come, they too busy thinking"; "'cos you can see he's not talking or anything like that"; "when they not like co-operating with you. They thinking of something and like you say, 'Do you want to come and play with me' and they just say, 'No' they thinking". 'Staring into space' is a stereotyped idea about thinking since one can think without assuming a particular posture at all. As the gifted child (12 years) mentioned:

"If they're alive, they're thinking. A person is always thinking subconsciously about anything but - you don't really know... you can see when a person's really deep in thought by...the expression on his face... he would probably sit down, wouldn't run around or he'd probably be frowning".

Thirty eight percent of 12 year olds mentioned facial expression as being one criterion of many, for example, "by their looks on their face - (they look) puzzled and if you talking to them and they don't respond properly, you know they're thinking about something else"; "Sometimes they just stare up into space and like if you ask them a question or something...they won't hear you and they won't do it on purpose, it's just that they thinking and they in another world and you can tell".

All adults mentioned more than one criterion and they emphasized the difficulty one has in determining whether someone else is thinking or not: "you don't know...maybe by actions and...I think you can't really tell if somebody's thinking...you don't really know"; "(you) can't really tell but you might be able to tell if the person wasn't paying attention to things around them or by facial expression"; "they usually quiet and they look thoughtful (smiles) - they look dreamy, sometimes perplexed, they trying to puzzle something out".

The younger subjects appear to have a narrow, more stereotyped view of another person thinking. The diversity of behaviours encompassed by this one word is revealed in the responses of the adults. In contrast to Q161, 'What do you do when you think?' subjects draw on a different

set of behaviours in reaching their conclusions. This has important implications for language learning (see Chapter 6).

4.4.4(d) 'What do you do when you pretend?' (Q158) revealed a greater diversity of responses within each age group than Q161 ('What do you do when you think?'). Examples of answers at the 6 year level are, "like you pretend you sleeping, so, you go like this (closes eyes, leans back, head back)". This subject gave an example as an explanation, as did some older children as in "um...you not really, you not really - like say you crying and you pretend that you're crying, you're not really crying" (8 years); "um...when you pretend say you crying and you want to chaff somebody that you crying" (8 years). However, general explanations such as, "you laugh afterwards"; "like chaff"; "you do something and you not really properly doing it" were also found from 6 years of age in accordance with the definitions of pretend (Q162 and Q164). Eight year olds gave similar answers, for example, "I start joking"; "it's like miming".

At 10 and 12 years, more general explanations were offered, for example, "you just acting like something else"; "you act like something or you can dress up"; "you chaff them"; "...you act something"; "you make-believe..." (10 years); "you make it up"; "you chaff...you pretend you doing something, but you not doing it" (12 years). Other 12 year olds drew on examples as did the younger children, but in a broader context: "you just...you pretend you hurt - you make people think that you hurt, look like you hurt"; "like say someone...kicks you and misses but he doesn't know...then you could fall on the ground and hold your calf 'aah, it's sore' and he could think you for reals, but you know that you pretending". Adults suggested that "you go into a fantasy world"; "you take on the characteristics of somebody else"; "you imagine something"; "you act the part of something else". One adult emphasized that pretending can be done in different ways, that is, "you either make-believe that you're something that you're not or you say something which isn't, or you do an act, a charade". The interpretation of do depends upon "what I'm, pretending about" (adult).

It emerges from the findings for feel, where, see and do that the "grammar" of one word affects the "grammar" of other words with which

it is used and that this occurs in very specific ways. The data illustrates that the younger children answered these questions differently from the older children.

4.4.4(e) 'What do you do when you're angry?' (Q46) gave rise to very different answers from Q51 (have a pain), Q158 (pretend) and Q161 (think). 6 year olds answered "I scream and shout"; "I go and sit on my bed and read a book"; "you get cross"; "I just go to lie on my bed". Similarly, 8 year olds suggested "I scream"; "you start shouting"; "you scream and shout and you like, cross with the person you angry with"; "you get so cross that you want to get mad at everyone"; "I start hitting the bed"; "I get like mad (laughs)..."

From 10 years, subjects offered alternatives depending on the situation, for example, "well, I scream at my friends, and if I'm cross, I start hitting them"; "It depends what I'm, angry at...If I'm angry with somebody I just ignore them or sometimes I feel very angry and I go and read or something"; "you can shout, you can just like go into a room and stay there".

Twelve year olds responded similarly to 10 year olds but suggested a greater diversity of criteria, as in "you feel very cross and you, like, breaking things..."; "I don't really want to talk to anybody"; "...when they get in the way, you push them out of the way, and that..."; "maybe you hit the person or shout at him"; "when I feel angry, I take it out but when I'm cross I can keep it in"; "I always slam the door behind me so that they know I'm cross, then I take it out on my cushion or something"; "...I try to be alone".

Adults suggested that "I try and let my frustrations out - I usually shout or get agitated...when I'm angry it's much more outspoken than if I'm cross. I'll just mutter or something"; "I usually walk away from the things that are making me angry, then I may give vent to my annoyance and I might shout at the person"; "it would depend on the situation...I could tell about it, I could bottle it up, I could..."; "cry or - take it out on someone - or shout"; "probably shout and go red in the face...cross is irritated - angry is physical, like you slap something or you scream or whatever". They differentiated cross from angry as did a few 12 year olds.

These tasks illustrate that **angry**, like **pain** and **pretend**, does not require a shift from the focus on overt action to more mental operations as does **think**. In the **angry**, **pain** and **pretend** tasks, the progression is mainly in the types of explanations offered and in the strategies employed in answering the questions. Strategies used progress from an example as an explanation to a general explanation and to a greater diversity of possibilities being emphasized. **Think** would appear to be a later developing word in that it requires a greater shift in function in relation to the word **do**.

4.4.5 Summary of findings for feel, where, see, do

i) **Feel** in relation to **dream** gave rise to a progression from interpreting **feel** in the sense of 'touch' at 6 years, to that of 'experiencing an emotion' from 8 years and beyond.

ii) **Where** yielded a progression from an external reference source for 'where do you dream' to an internal reference whereas **where** in relation to **pain**, **ache** and **think** gave rise to responses 'in the body' for all age groups.

iii) **See** in relation to thoughts and dreams yielded qualified responses with regard to the sense of **see** from 8 years of age.

iv) **Do** was used differently by children of all ages when applied to **be** in **pain**, **pretend** and **be angry**. However, for **think**, the 6 year olds applied **do** in the sense of 'action' and failed to take into account its specific relation to the "grammar" of **think**.

In the chapter which follows, findings for all the words are explained in relation to the theoretical issues and the aims presented in chapters 1 and 2.

CHAPTER 5 : DISCUSSION

See how high the seas of language run here
(Wittgenstein, 1953, pt.194).

This chapter opens with a summary of the main experimental findings discussed in light of the two major aims. Each sub-aim is dealt with specifically. Additional findings arising from the experimental data are then presented followed by a discussion of the findings in light of their theoretical implications. A model of word meaning development during the primary school period concludes this chapter. The model is presented schematically together with explanatory notes. It is suggested that the nature of word meaning renders formalization difficult.

5.1 Findings in relation to the aims

Findings are presented as answers to the questions posed as sub-aims in the Introduction to this study.

5.1.1 Metalinguistic questions and judgements as a method of examining the meanings of non-ostensive words

Findings for the ninety-five tasks for the three words (**same**, **pretend** and **pain**) together with their semantically-linked words, revealed that the method devised for investigating primary school children's understanding of non-ostensive words is a useful one. Similarities and differences both within and between children of different age groups were elucidated. Metalinguistically-phrased questions requiring justifications together with extended probe questions delved into the child's understanding. Subjects were questioned about a particular word from different vantage points which highlighted each child's individual viewpoint thereby reducing the possibility of the results being simply spurious.

This method highlighted the qualitative differences in understanding of word meaning between children of different age groups, the differences in a word's meaning when applied in different contexts (for any one age group) and the individual differences in subjects' performance. Qualitative differences were noted in the children's

responses as well as in the strategies employed by children of different ages. The method was suitable for the age range in question (namely, that of primary school children) and it revealed variations in performance which are hidden in comprehension and production tasks for children beyond the preschool period. The present findings differ from those reported in comprehension, expression and metalinguistic studies to date.

It was found that there were relatively few spontaneous errors of "grammar" beyond the preschool period. Metalinguistically-phrased questions enabled the researcher to penetrate beyond the surface of the child's knowledge to his deeper understanding of these words. Children offered different qualitative explanations when reflecting on word meaning even though they were able to apply the word correctly in their spontaneous conversation.

The analysis did not attempt to delve to the core of a word's meaning since it was argued that, in this sense, there is no core meaning. Rather, the meaning of a word can be established according to a broad description of the uses of the word over a variety of tasks. The researcher was not attempting to isolate causes nor to offer logical explanations, but rather, to describe the meanings of words on the basis of their "grammatical" use in the language. The method of assessment elucidated the approach to word meaning proposed by the present researcher, namely that a large part of the word's meaning stems from the alterations in senses according to the words with which it co-occurs.

Regarding metalinguistic awareness and the method adopted in this study, four questions require consideration, namely :

- a) Are the present findings artificial since they arise from an experimental setting?
- b) What is the relationship between metalinguistic awareness and language use?
- c) Does metalinguistic awareness explain the continuity in language development from childhood to adulthood?
- d) What is the ontological status of linguistic concepts?

5.1.1(a) Artificiality of findings arising from an experimental setting

A distinction needs to be drawn between the use and understanding of words in a natural communicative setting and word meaning independent of its context. We have to ascertain whether we have arrived at findings which are authentic with regard to language and its development or whether we have simply extracted findings which have no bearing on the natural development of language but which arise from the nature of the experiment itself.

All experiments include some artificiality. This can be reduced to a certain degree but can only be eliminated completely if observation within a natural setting is used. The present findings may appear to be artificial because they are arrived at by direct questioning. As was pointed out, however, it is only by means of direct questioning that we can delve beyond the child's correct spontaneous productions. This approach complies with that of all language comprehension studies but it extends beyond them by assessing each word (for example, same) in numerous linguistic contexts (for example, same pain, same ball, same dress).

Linguistic approaches which have concerned themselves with the "ideal speaker-hearer" (for example, Chomsky, 1965) minimize context and performance factors in their theories. The present approach which emphasizes the "grammar" of words questions the validity of describing word meaning out of its everyday context and use. However, our basic assumptions about language necessarily come into play. If we accept the idea of "language as an abstract object" (Katz, 1981) then the present approach, an analysis of language in context, would appear to be invalid. We would then attempt to explain a word's meaning in the abstract rather than within the process of communication.

The present approach assumes that language theories should be built around child development studies with communication in context as their primary focus. Investigating word meaning without accounting for the reciprocal effect of one word on other words, provides a simplified and distorted picture.

5.1.5.(b) The relationship between metalinguistic awareness and language use

Beyond the age of about 5 years, natural observation as a method of data collection becomes increasingly difficult. Experimental tasks allow us to manipulate the variables we are interested in but such methods inevitably introduce some degree of artificiality into the situation.

Many of the tasks presented in this study use words in ways not found in everyday language, for example,

see your dreams

see your thoughts

John gave me a pain and now he wants it back again.

Even if the child attempts to attach some meaning to what appear to him to be bizarre questions (as in Hughes and Grieve's study, *ibid*), what is important is the way in which he uses the words and the types of explanations he offers. Commonalities between children in different age groups are of particular importance.

We have to ascertain whether we have arrived at findings which are authentic with regard to language and its development or whether we have simply extracted findings which have no bearing on the natural development of language but arise from the nature of the experiment itself.

Metalinguistic awareness is a type of linguistic skill but its status is controversial. We have to determine what place metalinguistic awareness holds within the linguistic system. Is it a superimposition on the linguistic system, that is, an object of awareness apart from the linguistic system; or does metalinguistic awareness spring from linguistic understanding? If metalinguistic awareness has no bearing on language use, then the present findings reveal something about the child's abilities other than his primary language abilities at different periods during the school years.

On the basis of the present findings, it would seem that metalinguistic awareness stems from a linguistic understanding but also draws on more general abilities (such as cognition) which are then superimposed on the linguistic system. This conclusion is reached on the basis of the following :

i) The strategies employed by children of different ages in

answering the questions posed differ on the basis of the different levels of language use which then affects the type of answer given for the metalinguistic tasks (see section 5.1.2c). The extent to which these strategies are linguistic versus non-linguistic requires further investigation.

ii) Language facility may account partially for the reverse trend found at about 8 years of age on numerous tasks (see section 5.2.1a). Cognitive abilities, reading skills or a combination of these factors may further explain this trend. (From the present tasks, a distinction between the influence of cognition and that of reading cannot be made). It is of interest that at about 8 years, the reading tasks to which the child is exposed progress from an emphasis on visual perception to an emphasis on auditory perception. It has been noted that children are frequently referred for learning difficulties around the 8 year age level (Shapiro, 1985; Wiig, 1985).

It is also possible that increased ability at the level of metalinguistic awareness leads to increased understanding of word meaning, for example, our ability to reflect upon the meanings of words such as *pain* may add to, or even be necessary for, our fuller understanding of the word's meaning. The present findings lead to speculation that metalinguistic skills are an extension of language skills. The present metalinguistic tasks penetrated more deeply into the child's knowledge and understanding of the words and, thereby, revealed that the child's knowledge is only partial, progressing with development. If, on the other hand, metalinguistic awareness is a skill superimposed on that of language ability, then the findings would reveal different skills which bear little relation to the child's everyday language use.

The present researcher argues that the child's 'deeper' level of understanding is qualitatively different from that of adults'. There is no single point at which one knows the meaning of a word and words are not finite with regard to their uses. The development of word meaning is regarded as dynamic, continuing through adulthood (Mulford, 1977). It is the present contention that we are only able to 'tap' the child's level of comprehension by questioning him about particular words.

In contradistinction to this, traditional comprehension tasks lead to an all-or-none quantitative measure: a child either comprehends a word or he does not. A related argument has been that we are only justified in questioning the child about words that we hear him use and therefore, that we 'know' he already has within his repertoire. However, what constitutes 'having something within one's repertoire?' The majority of applied researchers, for example, those in speech and language pathology have built upon this premiss in formulating vocabulary and other language tests (for example the Reynell Test of Language Development, 1980; the Peabody Picture Vocabulary Test, Dunn 1965).

Concluding that the child 'has the word in his repertoire' suggests that he has acquired its complete and extensive range of uses. The traditional approach rests on a false foundation, stemming from the ostensive definition approach.

The children's spontaneous production of the non-ostensive words assessed was found to be in advance of their ability to reflect upon these words. (No distinction is drawn between metalinguistic performance and metalinguistic competence). Previous research has indicated a developmental lag between comprehension and production on the one hand and metalinguistic skills on the other, the latter being 1¹/₂ to 2 years behind in development (Karmiloff-Smith, 1979b). A child may understand a particular word differently from an adult even though he applies it spontaneously in the same context. In spontaneous communication, we would fail to notice differences unless we questioned the child (or adult) about his intended meaning.

Bowerman (1981) asks when we can be certain that the child has acquired a particular process or meaning. Errors have been noted after it has been assumed that the child has acquired a particular structure. She suggests that these "late errors ... involve changes in the kinds of connections the child has initially established between meanings and linguistic forms" (ibid, p.3). The present researcher suggests that these "late errors" may be clearly explained within the framework of "grammar". We cannot identify errors in the child's use of the word over a variety of contexts. However, he has a restricted understanding of the word and uses it in this restricted

sense only. He therefore, learns to use the word correctly in production before he has a full grasp of its meaning.

It may be argued that asking the child questions about a word which he does not 'have within his repertoire' would lead to bizarre answers. Bever (1982, p.430) states that "...we may find instances in which children systematically generate false kinds of hypotheses about their native language" and that this may certainly be the case when they are required to reflect upon their language. However, commonalities in the responses of children of different age levels indicate genuine levels of ability.

If the child has a different understanding of the word **same** as it applies to **ball**, **pain** and **dress**, it would suggest that the word is not learned as an all-or-none phenomenon and that vocabulary studies must take this into account. 'Within the child's repertoire' may require qualification: a 6 year old may be said to have a word 'in his repertoire' if he understands the word comparably to others in his age group but a 10 year old who uses the word comparably to a 6 year old, does not have the word 'in his repertoire'. There is no definite moment in time during which the child can be said to have a word in his repertoire. Rather, we need to revise our use of the word **vocabulary** so as to take into account different expectations for children of different age levels and so as to include metalinguistic awareness within our vocabulary assessment.

5.1.1(c) Metalinguistic awareness: Continuity in language development from childhood to adulthood

All metalinguistic questions, which require that one reflect upon language itself, remove language from its everyday use. However, as was mentioned earlier, beyond the preschool period we are compelled to draw on metalinguistic questions in order to penetrate beyond the child's expressive language (which reveals few errors) to his deeper understanding.

It would seem that metalinguistic awareness is a skill developing during the primary school period since differences occur in the performance of primary school children on these questions. It is suggested that the notion of "language games" may explain continuity

in the learning of words from the preschool period through the primary school years and into adulthood.

The findings have important implications for an evaluation of language learning and development in the use of words. They suggest that the child does not learn a word in one context, build up an image of it and then apply it in that form in different contexts. Rather, the child learns to use words with altered nuances over a variety of contexts. If he is able to do this after having learned the word in one or a few contexts only, it suggests something important about his innate ability to generalize in this regard. If not, it suggests that learning must include a variety of "language games" for each word.

Numerous examples can be cited from the analysis to illustrate the notion of "language games". One particularly enlightening example is the use or learning of **pain** as it applies in the first person in contrast to its use in the third person. In the first person, **pain** is a sensation which one experiences. When deciding that someone else is in pain, the children drew on a different set of criteria, for example, one person may observe another clutching his stomach, groaning, saying "I'm in such pain!", screwing up his face in agony, and so on. The child does not, in the same way, recognize his own pain from his own clutching behaviour, and so on. Rather, in the first person, the clutching and groaning will follow the experience of pain. In the third person, these behaviours precede his recognition of pain behaviour (in the other person). The one use of the word **pain** does not necessarily imply the other and suggests that they may need to be learned in different "language games".

Similarly, using the word **pain** in 'I am in pain' versus **pretending to be in pain** demands that we take into account different aspects of the situation. We cannot learn this by means of ostensive definition even were we able to point to the pain itself (which we cannot). We have to learn to shift the emphasis and selection of criteria when using the word **pain** in different contexts. It is also possible that part of our awareness of our own humanness is that we naturally infer that others experience sensations such as pain in the way that we do ourselves (Macdonald, 1985).

These findings give rise to two possible explanations:

i) The word is learned in different "language games", for example, pain for self; pain for others; pretend to be in pain (which may be equivalent for self and other), and so on; same in relation to ball; same in relation to pain where different criteria hold.

ii) The child has an innate ability to extend a word from one "language game" to a diversity of others which, in many ways, differ markedly from the first. Innateness can only be inferred rather than concluded directly. Hypothetically, pain may be learned first in relation to oneself and only later will the child be able to use the word when he recognizes pain in others.

It is important to determine how "language games" are represented in the language system, for example, are they part of the word's meaning or of the concept or are they part of the rules of the system? Further research may enlighten us in this regard.

5.1.1(d) The ontological status of everyday concepts.

This concerns the extent to which everyday concepts are inherent in the word versus in the child's mind versus part of the child's strategy in answering the questions posed. The present findings may be useful for test-and theory-building in child language development but may not reveal concepts which are in children's minds. However, the changes that occur in children's answers with development elucidate certain underlying abilities possessed by children of different ages. The meaning may be part of the child's strategy in answering the particular questions posed (that is, his performance which stems from his competence as a native speaker) rather than being part of the language system which underlies his language behaviour.

The 6 year olds appear to regard an example as being able to fully explain the question. Eight year olds tend to say "...like, if you've got..." indicating, by using "like", that they are aware that the example is only one aspect of the entire question but that it adds clarification. A general explanation seems to be regarded by the speaker as sufficiently explanatory to warrant no additional examples. Numerous examples as an explanation were also provided by the gifted child, particularly, and by other 12 year olds. These answers reveal

a lack of sophisticated confusion and an unintentional focus on the "grammar" of words.

When 6 year olds attempted to answer a question of the form (i) 'What is a -', they gave what we would consider to be 'an example'. The question 'What is a -' may be understood by them to be: 'Give an example of' - or 'give a synonym for'. However, what is most interesting is that when presented with the question form: (ii) 'Give me an example of' -, most of the 6 year olds were unable to answer the question, saying they did not know what an **example** is. These questions were reworded for the 6 year olds, in the form: 'Give me one (word) you know'. Can we then say that the child has the concept 'EXAMPLE'?

We are tempted to say "yes" when we see that he gives an example or gives what we would call an **example** (i above). In others words, in this situation, his behaviour approaches what we would call 'knowing the concept EXAMPLE'. But the second question (ii above) indicates that he does not yet have the concept in the same way as our adult concept. He may be regarded as having a part of that concept. This finding ties in with the view of "grammar": the children were able to apply a word appropriately or in this case, to use a strategy, without having a complete understanding of its meaning. They were also aware of what they did not know.

The general explanations offered by the older children and by the adults also failed to encompass the "grammar" of the word, that is, the way in which it varies from one linguistic context to another. Their explanations suggest that the word (for example, **same**) carries with it, to all contexts, the meaning of 'commonality' or 'likeness between two entities'. When applied in the identity sense, this suggests that the likeness persists for the one entity. What has been termed a 'general explanation' is no more likely to convey completely the meaning of a word, than is an example as an explanation. The use of general explanations might be a symptom of sophisticated confusion (see Section 5.2.1b). It must be kept in mind that sophisticated confusion is part of our induction into adult life which it is desirable for the child to attain.

The findings illustrate two types of developmental progression. First, development occurred in the strategies employed by children in answering the metalinguistically-phrased questions. Here the focus is on the child from which conclusions about word meaning may be tentatively drawn. Second, development was apparent in the children's understanding of the "grammar" of the words assessed. In this case, the focus is on the word although this cannot be separated entirely from the child's response. Adopting a "grammar" approach to word meaning, we achieve little by separating that part of the word's meaning which is inherent to the word itself from that part of its meaning which stems from the word with which it co-occurs since both aspects are essential to the word's meaning.

Studies to date have not taken the "grammar" of words into account and would most likely argue that only that which remains stable from one context to another can be regarded as the word's meaning. Dictionary definitions of words would appear to reflect this constancy. Theories of word meaning which have investigated words out of a linguistic context (for example, feature theories) do not adequately account for the way a word alters its sense when it combines with other words and they favour stability of meaning. However, the present researcher has illustrated that these approaches do not encompass the complexity of a word's meaning and that definitions of words as well as theories of word meaning to date, are therefore, limited.

Whether the meaning is inherent in the word itself or not may be considered from two vantage points :

i) The meaning stems both from the word itself and from the other word(s) with which the word co-occurs in a particular context. As an example of the latter, in the sentence 'I feel pain', feel is essential to the word pain since you have to feel pain in order to experience it at all, whereas pain adds to the meaning of feel in this linguistic context since here, feel must mean 'experience' rather than 'touch'. A crucial part of the word's meaning comes from its uses in a diversity of contexts.

ii) Children's inferences about a word's meaning must be differentiated from the word's meaning itself. This relates to whether words can be regarded as ever having a meaning outside of a linguistic context. In the present study, it is argued that even

definitions occur within a linguistic context. If so, the issue is nullified since we can then only arrive at an adequate explanation of language by investigating peoples' uses thereof.

The progression from providing an example as an explanation and from including the word being explained within the explanation, to drawing on an example as part of the explanation, to a general explanation, was found over numerous tasks dealing with different words. This may not tell us directly about the meaning of the words but the strategies employed at different periods of development reflect different understanding ("grammar") of the syntactical forms in which the questions were formulated, such as:

"When I say...what do I mean?"

"What does...mean?"

and "What is a...?"

The present findings suggest that the child's grasp of a word's meaning may be restricted by the strategies at his disposal for answering the questions posed. Conversely, the child's level of understanding may lead to his employing certain strategies in explaining the words within this particular type of task. The child may possess a deeper understanding of the word's meaning than he is able to express verbally or the explanation he offers may be a direct reflection of his level of understanding. This distinction becomes superfluous when we consider the commonalities that occur between children of a particular age group in the types of strategies employed. What is of importance is that strategies used differ from one age level to the next. The need to separate what is part of the word's meaning from what is inference on the part of the child, falls away within the framework of "grammar" and an investigation of language in context.

5.1.2 "Grammar" and the meaning of non-ostensive words

It was found that words as applied in particular linguistic contexts were understood differently by children of different ages. There was no clear demarcation in the responses from one age level to the next but a gradual developmental progression was noted on certain tasks. When a particular word was applied in different linguistic contexts, uniformity or variability of responses was noted across children of

all ages. The latter suggests that a word does not have a single use which remains constant on every occasion. It would appear that certain uses are learned earlier than others. These findings are discussed below in relation to each sub-aim.

5.1.2(a) Qualitative differences within and between age groups in using and understanding non-ostensive words in particular linguistic contexts

Findings for the words **same**, **pretend**, **pain**, **do**, **feel**, **see** and **where** revealed changes in the uses of these words in a variety of contexts on a group of tasks. This was found both within particular age groups as well as between age groups. Certain tasks yielded a developmental trend with increasing age and others gave rise to either homogeneous responses or heterogeneous responses from subject to subject independent of age level. Findings differed for each word and for each task.

A developmental trend was found in the uses of the words **same**, **pretend** and **pain** on certain tasks but not on others. This suggests that the context in which the word is applied is a factor influencing the meaning that the child assigns to the word. These findings support a "grammar" approach to word meaning. Findings for each word together with its related words are presented below followed by brief explanations.

i) For the word **same**, there was found to be an overall decrease in the equivalence sense of **same** with an increase in the identity sense on a variety of tasks (Q17 **same apple**; Q32e **same dress**; Q33 **same ball**) except for a slight reverse trend at 8 years. For Q32e (**same dress**) and Q35 (**same apple**), the rudiments of the identity sense appear at 6 years (see table 10). These findings highlight the importance of taking the linguistic context into account when analyzing word meaning which previous researchers have failed to do. Karmiloff-Smith (1979a) mentioned that type of task is important in evaluating results with regard to **same** but she did not elaborate.

Development from an emphasis on the equivalence to the identity sense of the word **same** reveals a move away from the concrete object (see section 5.3.2). The equivalence sense generally focusses on overt similarities between concrete objects (for example, ball, leaf,

dress). Where a non-ostensive word was used (for example, pain), the youngest children focussed on overt characteristics in relation to the pain, for example, place, in contrast to the older children who emphasized type. The identity sense highlights 'covert' similarities for concrete objects viewed over time, for example, older children emphasized that the tadpole developed into the frog and that, despite overt changes, it was the same (thing). The identity sense (continuity over time) does not allow one to point to an external reference.

TABLE 10 : Summary of findings for same, similar and different

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Definition tasks	In strategies employed: example as explanation and use of word being defined to general explanation from 10 years		No single definition offered by subjects within a single age level
Fuzzy boundary tasks	In strategies employed: example as explanation plus use of word being defined to general explanation		Variation
Different dress/shirt (Q16)	One criterion to more than one criterion mentioned		Variation
Same dress Q32a (size) Q32b (colour) Q32c (sleeve-length) Q32d (style) Q32e (1 dress)	Reverse trend at 8 years	Style suggests difference equivalence sense pre-dominant for all groups	Variation Variation Variation
Same dress/shirt (Q21)	One criterion to more than one criterion mentioned		

Table 10 continued

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Same Apple (Q17)	Sense of equivalence until 10 years to that of identity from 12 years. Reverse trend at 8 years		
Apple trees (Q35)	Equivalence sense to 12 years; identity sense at adult level		
Same chair(s) (Q31)	Equivalence sense predominant at 6 years with identity sense emphasized from 8 years		
Same seat (Q26)		Identity sense for all subjects	
Same book (Q29)	<ul style="list-style-type: none"> - Focus on overt characteristic with progression to emphasis on content from 10 years - One criterion at 6 years; two criteria at 8 years 		
Same ball (Q33)		Equivalence sense favoured by all subjects	
Same leaf (Q27a)	Concrete aspects emphasized at 6 and 8 years		

Table 10 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Same tadpole/frog (Q27b)	Concrete aspects focused on by 6 year olds only Confusion apparent from 10 years of age for both Q27a and Q27b		
Same ship (Q30)		"Similar" predominant	
Same pain (Q15)	Place and/or type mentioned at 6, 8 and 10 years; type only predominating from 12 years		
Q15 and Q45	Increase in consistency of responses with age with reverse trend at 8 years		
Q47	Place predominant at 6 years; 10 years - type, intensity and place equally predominant		
Q48	Two criteria mentioned from 10 years	Uniformity with reverse trend at 8 years	
Q49	Increase in use of "maybe" from 12 years		
Q60	Sophisticated confusion evident from 12 years	Uniformity	

Table 10 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Q76	Interpretation of 'my pain' as 'the same pain' decreases with age. Reverse trend at 8 years		
Q25 (similar pain)	Example as explanation to general explanation from 10 years		
Same dreams (Q159)	Progression with age: change from 12 years		
Same anger (Q41)		Uniformity with reverse trend at 8 years	

ii) Pain and pretend yielded variability from one task to another and developmental trends on certain tasks but no progression in senses of these words was found with age (see tables 11 and 12). It is possible that an investigation in preschool children will reveal a progression of this type or that the different senses are learned simultaneously but that their application to different contexts alters. Findings for the word pretend, revealed greater uniformity of responses for all age groups than for the other words which suggest that certain words are learned earlier than others.

TABLE 11 : Summary of findings for pretend, know, think and believe

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Definition tasks (Q164)	Progression from example as explanation to general explanations from 8 years	"chaff" common in all groups	no single definition offered
(Q162)	Overt criteria emphasized at 6 and 8 years; entire context drawn on from 10 years		
Fuzzy boundary tasks (Q140)	Example as explanation to general explanation from 8 years	lie more frequently included than pretend in the explanation	
<u>Pretend to walk</u> (Q175)		"Can't pretend to walk"	
<u>Pretend to sing</u> (Q176)	From 8 years, subjects draw on a broader context in explaining which becomes more elaborate with increasing age		
<u>Pretend to be in pain</u> (Q178)		making a noise and clutching the painful area of the body; 2 criteria mentioned by 6 year olds as well as older children	

Table 11 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
(Q80a, b) Someone else in pain (Q72)	Progression from emphasis on overt criteria to an entire context from 8 years	pretend behaviour recognized	
Is the boy in pain/not? (Q100)			Variation
<u>Pretend to dream</u> (Q180)	Trend		
<u>Pretend to write</u> (Q183)		Uniformity	
<u>Pretend to be angry</u> (Q181)		Uniformity	
<u>Pretend to think</u> (Q177)	Progression from overt criteria to others such as "concentrating"	In content	
<u>Pretend to laugh</u> (Q179)			Variation

Table 11 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
<u>Pretend to be yourself</u> (Q182)	Reverse trend at 8 years.	Uniformity	
<u>Pretends he's sick</u> (Q166)		Uniformity	
<u>Knows he's sick</u> (Q167)		Uniformity	
<u>Thinks he's sick</u> (Q168)	Progression to "maybe" from 8 years		
<u>Believes he's sick</u> (Q169)	Progression to "maybe" from 8 years		
Q205		Uniformity	
<u>Thinks he can fly</u> (Q201)			Variation
<u>Knows he can fly</u> (Q202)		Uniformity	
<u>Pretends he can fly</u> (Q203)		Uniformity	
<u>Believes he can fly</u> (Q204)	6-12 years respond uniformly, adults differ due to "maybe" option		
<u>Believes she has a skateboard</u> (Q198)	Progression to "maybe" at 8 years		
<u>Thinks he has a bicycle</u> (Q187)	Progression to "maybe" at 8 years		

TABLE 12 : Summary of findings for pain, ache and sore

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
Definition tasks (Q39)	More than one criterion mentioned from 12 years	General explanation	
(Q40)	Ache explained with reference to <u>pain</u> common from 10 years		
Fuzzy boundaries (Q42)	"Similar" increasingly selected from 12 years. More than one qualitative category mentioned from 10 years	Greater fuzziness of boundaries between <u>pain</u> and <u>ache</u> versus <u>pain</u> and <u>sore</u>	Variation
(Q52)	<u>Sore</u> and <u>a sore</u> confused by 6 and 8 year olds		
(Q42) and (Q52)			
(Q53) and (Q63)			Variation
<u>Same pain</u> (see <u>same</u> tasks table 10)			
<u>Pretend to be in pain</u> (see pretend tasks table 11)			
<u>Give pain</u> (Q77)	6 year olds suggest that pain can be transferred from one person to another		

Table 12 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
(Q85) (Q65)	Progression from literal to figurative explanation from 10 years	Uniformity	
<u>Feel pain</u>		Uniformity	
<u>"Grammar" errors</u> <u>Feel pain</u> (Q129)		Unacceptable	
<u>Pain on my arm</u> (Q127)	Unacceptable from 8 years		
pain inside point to pain (Q61)	Yes at 6 years, variation from 10 years	yes	
<u>love a pain</u> (Q125)	Unacceptable to the majority of subjects. More adults and 8 year olds found it acceptable for different reasons.		

iii) Developmental trends were found in children's understanding of do in certain linguistic contexts (namely, 'What do you do when you think?') with greater uniformity in other contexts (for example, 'What do you do when you pretend?'). Do was interpreted in the sense of 'act' which older children recognized as not being applicable to the word think (summarized in table 13).

TABLE 13 : Summary of findings for feel, where, see and do

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
<u>Feel your dreams</u> (Q195)	Sense of 'touch' at 6 years; 'experience' from 8 years	Experience	
<u>Feel pain</u> (Q129)			
<u>Where - pain</u> (Q54)	Examples to "anywhere" from 10-12 years	Particular parts of body mentioned, for example, head, stomach	Variation
<u>Where - an ache</u> (Q75)	Examples to "anywhere" from 12 years		
<u>Where - anger</u> (Q62)			
<u>Where - think</u> (Q160)	"head" to "brain" or "mind" from 12 years		
<u>Where - dream</u> (Q147)	Place outside the body to place in the body from 10 years		
<u>See - thoughts</u> (Q134)	"No" for all the children; "yes" and "no" for adults;		
<u>See - dreams</u> (Q156)	"No" at 6 years; "yes" from 8 years and beyond		
<u>Do - pain</u> (Q51)	"Cry" mentioned by 6, 8 and 10 year olds. From 10 years, do interpreted as not equivalent to 'action'	Situational consequences	
<u>Do - think</u> (Q161)	Overt characteristics at 6 years, decreasing from 8 years to confusion and an emphasis on covert behaviour from 10 years		

Table 13 continued ...

Task	Developmental Trend	Uniformity for all subjects	Variation between groups of subjects
<u>Know - think</u> (someone else) (Q131)	Facial expression to broader context from 10 years		
<u>Do - pretend</u> (Q158)	Examples to general explanations or to numerous examples from 10 years		Variation in content
<u>Do - angry</u> (Q46)	Examples at 6 and 8 years; situation-dependent from 10 years		

iv) There was a progressive move with age from understanding **feel** in the sense of 'touch' to understanding **feel** in the sense of 'experience'. In certain contexts, namely, **feel pain**, the younger children also interpreted **feel** in the sense of 'experience'.

v) **See** was interpreted by younger children in the sense of "have or exercise the power of discerning objects with the eyes" (Concise Oxford Dictionary, 1976). Older children were able to apply another sense of **see**, namely, "call up picture of, imagine" when **see** was applied to **dreams**, as an example.

Individual variation between subjects was found on the fuzzy boundary tasks for all words (see sections 4.1.4; 4.2.4; 4.3.4). Uniformity in responses of subjects of different age groups was noted on certain tasks particularly **pretend** tasks such as **pretend to walk** and **pretend to write**. This may be because **pretend** is learned earlier and is, therefore, applied similarly in numerous contexts by children of all age levels. However, a developmental progression occurred for other **pretend** tasks. These findings, considered together, support the view of "grammar" of words.

From the present set of tasks, one 6 year old male (S49) frequently offered explanations equivalent to those of older children. However, it is of interest that on his school reading assessment, his score was

average relative to his peers. The overlap of trends within any particular age level parallels decalage in a Piagetian approach although specific stages are not being suggested in the present study.

The child's initial answer tends to favour the one explanation (for example, the equivalence sense) above the other (the identity sense) and this follows a clear trend with development. However this issue is more complex than just a steady trend. S49 (6 years) favoured the identity notion and was consistent in this preference on a diversity of same tasks (Q17; Q27a; Q30) in which either sense was acceptable. He rejected the equivalence sense of same as an option when probed on these tasks. It appears in light of this, that although the equivalence sense is more commonly preferred and seems to be learned first by the majority of the younger subjects, this is not always the case. What is most important is that whichever sense is favoured, the younger children find it more difficult to accept ambiguity and to shift from their preferred notion with probing. From about 10 years of age, children generally favoured one approach but, with probing, readily acknowledged that the other answer was acceptable. At times, they were able to take into account numerous facets of the 'problem' to the extent that they appeared confused.

Within a Piagetian framework, children are only considered to be truly at a particular stage (such as concrete operational) if they maintain their position with probing. The present findings differ from Piaget's approach in that discrete stages do not seem to present themselves and maintaining one's original view with probing is not indicative of attainment of a particular developmental stage.

It is possible that there may be a greater number of situations in everyday communication in which the equivalence sense is required, and that this may be the reason why children generally learn this sense first. Whether S49 should be considered as more advanced than his peers is questionable. If this were the case, the equivalence sense would be regarded as preceding that of identity in development and S49 would be particularly advanced for his age. We would assume that he also acquired the equivalence sense before the identity sense but at an earlier age than his peers. On the other hand, it is possible that either sense is acquired first but that the young child finds the shift from one sense to another on the same task difficult. However,

in particular contexts which demand the identity sense only, he can make the adjustment: again, he is holding only a single sense in his mind at any one time. Each child's individual preference is important to take into account when analyzing his responses for same in a diversity of contexts.

5.1.2(b) The effect of linguistic context on the use and understanding of the words same, pretend and pain by children of different ages

From the findings in 5.1.2(a) above, it can be concluded that linguistic context alters the sense of the word. More specifically :

i) Each word has a variety of uses over a diversity of contexts and these uses together constitute its meaning. The "grammar" of words is revealed by the alterations in sense of a word from one context to another and by the way a word allows for combinations with some words but not with others in the language.

ii) Definitions vary widely and they are incomplete in elucidating the meaning of the word (see section 5.1.2d).

iii) Fuzziness of words allows them flexibility in altering their senses in different linguistic contexts.

The "grammar" of the words same, pretend and pain together with their semantically - linked words will be considered separately in the discussion which follows.

Pain ache and sore

The "grammar" of these words includes attributes as diverse as the following:

i) you have to feel pain in order to experience pain at all and in this case, feel does not take on the sense of 'touch'

ii) there is usually a cause for the pain followed by physiological consequences and, most frequently, practical consequences as well

iii) pain can only be applied to animate objects except in fantasy or in metaphorical language

- iv) pain can be applied to any part of the body
- v) pain can be of varying intensities and of differing qualities, for example, dull, throbbing, stabbing
- vi) pain cannot be shared by two people or transferred from one person to another
- vii) experiences of pain are private but are communicated verbally, by actions, or by nonlinguistic behaviours such as groaning
- viii) recognizing pain behaviour in another person draws on a different set of criteria from recognizing pain in oneself
- ix) we can point to the pain behaviour but not to the pain itself
- x) emotional pain differs from physical pain

These attributes differ from those of Rosch and her co-workers (1973a, 1973b, 1975, 1976) in prototype theory. Rosch's attributes were perceptual and applied to substantive words or to superordinate categories. As an example, for the concept 'CHAIR', attributes include 'have a back', 'a seat', 'four legs', and so on (Neisser, 1984). When applied to non-ostensive words, an entire situation needs to be taken into consideration as has been done in describing the word pain above. These attributes are not as easily identifiable as those for substantive words. These attributes are not prototypical of the word pain but rather, are essential to the word. Without these attributes, the word would express something other than pain. However, it is not being suggested that these attributes constitute the central 'core' meaning of the word. The meaning of the word stems not only from the word's attributes but also from the alteration of its senses in a variety of co-occurrence relations. If we disregarded the sense alterations of the words in attempting to arrive at its meaning, we would ignore crucial facets of the word's use, as a definition does. We also have to take into account the limited set of words with which a particular word can occur.

Ache has certain attributes which overlap with pain, for example, (i), (ii), (iii), (vi) and (viii) above but certain attributes, such as (iv) and (v) above differ. The word **ache** can be applied to any part

of the body but it is usually used in relation to specific areas of the body, namely, teeth, back, stomach. When applied to other body parts, it suggests a dull, throbbing type of pain and prolonged pain but the boundaries are fuzzy. The ability to explain how a pain and an ache differ develops with increasing age. Children from 6 years were aware of certain differences but not all. As an example, one child offered a spontaneous sentence with "face ache".

"Family resemblances" is not suitable for describing the relationship between attributes and the distribution of attributes for any particular word. From the attributes stipulated above, it is clear that a "family resemblance" does not exist between 'cannot point to the pain itself' and 'there is a cause for the pain'. Rather, there is a "family resemblance" between different uses of pain in different linguistic contexts, that is, between the senses of the word rather than between its attributes.

From the tasks, attributes would seem to be learned earlier than senses as in tasks such as Q129 ('I have a pain in my head but I can't feel it'. Does that sentence sound OK or not?) and Q61 ('Can you point to pain?'). Children of all ages recognized the absurdity in these questions and explained in comparable terms. On the other hand, senses of a word seem to follow a developmental progression as was found for same where children progressed from an emphasis on the equivalence sense to that of identity.

Same, similar and different

The "grammar" of the word same includes the following attributes :

- i) two items are being compared or one item is compared to itself over time
- ii) one item can be an exact replica of another or there can be differences
- iii) the equivalence sense of same applies when two items are compared and the identity sense applies when one item is compared to itself over a period of time

For the word similar, attributes include:

- i) two items are necessarily compared
- ii) items can never be exact: similar implies a relative quality

It was noted that **same** alters its sense according to the linguistic context in which it occurs. The word **ball** occurring with the word **same**, as an example, can take either an identity or an equivalence sense. Children progressed from favouring an equivalence sense to favouring an identity sense. Younger children compared the two balls in terms of overt criteria such as size and colour.

With **same pain**, on the other hand, only the identity sense is applicable. It is part of the "grammar" of the word **pain** that pain cannot be shared between two people. For this reason, the sense of **same** is not variable in this case. Children of all ages were aware of this aspect of the meaning of **pain** and no progression from the sense of equivalence to that of identity occurred.

For the tasks **same leaf** and **same tadpole/frog**, both of which dealt with sameness in terms of 'continuity over time', the extralinguistic context favoured the identity sense but a progression from the equivalence to the identity sense was again noted with increasing age. Unlike the **same pain** tasks in which the identity sense is obligatory because of the "grammar" of the word **pain**, for the **same leaf** and **same tadpole/frog** tasks either sense could apply with regard to the "grammar" of the words involved but the extralinguistic context restricts the meaning. The way in which the extralinguistic context does limit our assignment of meaning to words is also part of their "grammar".

The "grammar" of the word **pretend**, includes the following attributes:

- i) a real behaviour is simulated in an attempt to deliberately deceive or to 'chaff' someone else
- ii) the pretender is concealing something
- iii) consequences include smiling or laughing to reveal that it is only a joke
- iv) there is a limit which must not be overstepped

v) in certain instances, an impasse arises (for example, pretend to walk)

vi) pretence must be distinctively like the genuine article simulated.

The senses of pretend include:

i) a real behaviour is simulated as part of a joke

ii) a real behaviour is simulated so as to deliberately deceive

When contrasted with to lie, to pretend implies something more playful and to lie implies deception.

Nouns such as pain appear to be more easily described in terms of attributes whereas other words (verbs, adjectives, pronouns) such as pretend and same seem to depend more heavily on senses. "Grammar" is important for all words but the emphasis alters for different words. Verbs are more flexible than nouns in that they can be used with a greater variety of other words in the language. This ties in with their collocational range.

There appears to be greater constancy in the use of the word pain in different contexts, that is, attributes are more important than senses versus an emphasis on senses for the word same rather than on attributes. Furthermore, same and pretend can combine with numerous other words in the language, for example, pretend to be in pain, pretend to be angry, pretend to laugh, pretend to drink, pretend to walk, and so on. Pain, on the other hand, is more constrained in its uses.

Sense has no external reference but it is determined by the intralinguistic context in which the word occurs. It is difficult to clearly separate senses from attributes for any particular word.

5.1.2(c) Problem-solving strategies employed by children of different ages in answering the metalinguistic questions

Children of different ages were found to employ different strategies in answering the questions posed.

i) Children progressed from drawing on an example as an explanation to using a general explanation, particularly in the definition and fuzzy boundary tasks. The age of onset of general explanations varied according to the task, for example, for definitions of **pretend**, general explanations were more common from 8 years of age whereas for **same**, general explanations were noted only in 10 and 12 year olds. These findings support those of previous researchers (for example, Macdonald, 1983).

The younger subjects, by giving an example as an explanation, placed the word in an everyday context. This reveals that they have not yet mastered the definition word game. In so doing, they also emphasize one use of the word, and fail to account for its diverse uses. The general explanations offered at the later stages of development attempt to realize a 'prototypical' or core meaning of the word. This again minimizes the importance of the different uses of a word that occur when it is applied in different linguistic contexts. Where numerous examples are offered as an explanation, the diversity of application is accounted for and the difficulty in defining a central meaning for the word is highlighted.

The most comprehensive answer would combine numerous examples with a general explanation, thereby taking into consideration both diversity of application and consistency in use across situations. If there were no consistency in the use of the word from one situation to the next, word meaning would have no stability. Meaning would shift to such an extent that we would fail to convey what we intend in a proposition. However, this shift in senses is only one aspect of a word's meaning and its diversity of application is crucial to our understanding of word meaning. It is argued that this consistency or stability of a word is not its essence (as used colloquially). "Essence" as applied in the present study includes the stability of a word's meaning as well as the shift in emphasis that occurs when the word is applied over a diversity of contexts. Furthermore, numerous examples together with a general explanation may not be sufficient to establish word meaning. Specific 'training' together with intuition and an entire "form of life" (Wittgenstein; 1953, pt.241) may be required.

ii) The youngest children tended to include the word being defined in their explanation whereas the older children avoided using the word being defined (whether intentionally or unintentionally).

iii) There was a progression with age from mentioning one criterion to mentioning two criteria on a diversity of tasks. Again, the age at which two criteria were mentioned, differed from one task to another. For example, in Q42 which involved contrasting a pain and an ache, only adults mentioned two criteria. Contrarily, for pretend to be in pain, two criteria were mentioned from 6 years of age and increasingly so through development. For Q29 (same book), two criteria were mentioned from 8 years of age and for same pain (Q15), two criteria were drawn on by children of 10 years and older.

In the fuzzy boundary tasks, the younger children were frequently unable to hold the two words in mind simultaneously in order to contrast them. Contrarily, the older children drew on more than one criterion and were able to contrast one word with another.

The above findings confirm those of Karmiloff-Smith (1979a), Berthoud-Papandropoulou (1982, cited by Macdonald 1984), and Macdonald (1983, 1984). They found that children progress from extralinguistic to intralinguistic and then to metalinguistic justifications. Only at 12 years, did children respond to the question:

"If I say that things are the same,
what do I mean?",
With answers such as
"there's a connection between them".

This approximates a truly metalinguistic answer in which the child attempts to formulate a rule. It may appear only at 12 years because of "the directness of the question about word meaning, or else perhaps the abstractness of the concept in question" (Macdonald, 1984, p.14). The differences in age for each type of justification found in previous studies, were also confirmed since they varied from task to task for any particular word.

iv) Focus on the concrete aspects of the task was found to decrease with age, for example, for same book (Q29), colour or size (overt characteristics) were mentioned predominantly at 6 years with a

decrease and corresponding increase in mentioning content at 12 years. Adults most commonly suggested both criteria. Similarly, for **same pain** (Q15), place and type were mentioned by children at 6 and 8 years, with both criteria drawn on from 10 years of age and type only, being mentioned by adults. Place is more overt than type.

On those tasks for **same** tasks which assessed continuity over time, the 6 and 8 year olds focused on overt changes for **same leaf**, disregarding the identity sense of **same**. For **same tadpole/frog**, the 6 year olds emphasized the identity sense as did the older children.

It would appear that certain tasks are more difficult than others, for example, **same** in **same pain** appears to be more difficult than **same** in **same book**. Furthermore, certain words may be learned earlier and therefore, be able to be applied to a variety of contexts earlier than other words, for example, even 6 year olds described **pretend** in general terms and drew on two criteria in explaining **pretend to be in pain**.

v) It was found that the child is increasingly able to weigh up possibilities as was revealed in his use of "maybe". Once again, the age at which "maybe" was used varied from task to task. For **same pain** (Q49), "maybe" was included from 8 years and increased with age as for Q168 (**think he's sick**) and Q169 (**believe he's sick**). For Q201 (**thinks he can fly**) and Q202 (**knows he can fly**), only one subject of 8 years responded "maybe" as did two 6 year olds for each of Q168 (**think Mary has a bicycle**) and Q198 (**believe Mary has a skateboard**). For Q203 (**pretend he can fly**), "maybe" was mentioned only from 10 years of age. Olson and Astington (1984) reported similar findings, that is, young children did not use "maybe" and the inclusion of "maybe" developed with age. ("Maybe" is the correct response on tasks where the main verb is non-factive).

Development was found to progress from an example as an explanation to a general explanation. An example as an explanation constrains the word to use within a single context (a single sense) only. These examples all drew on concrete objects. A general explanation, on the other hand, attempts to find a single sense that will apply for all uses of the word, thereby failing to account for the word's diversity of senses which is so important to its meaning. A general explanation

allows for greater flexibility in that it takes the word out of the context of its uses. At the same time, it imposes tighter constraints because when the word is replaced in everyday contexts, the sense of the word has to be altered.

The above findings (i-v) indicate the importance of taking the linguistic context into account in evaluating these tasks.

All these findings support the view of word meaning which emphasizes the "grammar" of words as advocated in the present study. The strategies used by children of 6 through 10 years may not be adequate to enable the child to attain a use of the word which encompasses its diversity, ambiguity and so on. It is possible that these strategies are unrelated to language use per se since they derive from answers to metalinguistic tasks. However, it is equally possible that a child must pass through these stages on his way to becoming a competent adult language user. The changes in strategy employed by children of different ages may be due entirely or in part, to their different cognitive abilities.

5.1.2(d) The extent to which definitions encompass the meanings of non-ostensive words

It was found that adults displayed varied use and understanding of a word when applied in numerous contexts. No single definition was provided by all the adults for a particular word and their responses revealed only a part, rather than the whole, of the word's meaning. There was found to be no single definition of a word offered within or between age levels. The definition did not encompass the diversity of uses of the word and was, therefore, limited in revealing the meaning of the word. They focused on only one aspect of the word's meaning.

As an example, the definitions offered by subjects of all ages for the words **same** and **pain** are presented below followed by their use in combination:

same

- two things are identical
- two things are similar
- two things which have something in common
- an exact replica
- they look alike

pain

- when you're sore in your body
- when you hurt yourself
- something unpleasant
- physical discomfort
- a feeling experienced when you hurt yourself

same pain

The place of the pain is important in deciding whether the two pains are the same or not

(younger children)

Type of pain is important in deciding whether the two pains are the same or not

(12 year olds and adults)

From the definitions suggested for the word **same**, "something in common" and "similar" would apply to the use of **same** in combination with **pain**. "An exact replica", "they look alike" and "they're identical" fail to hold in the context of **same pain**. The definitions for **pain** are suitable for explaining **same pain** but younger children focus on the location of the pain and the older children and adults concentrate on the type of pain in drawing their conclusions.

A second example is provided by the definitions for **pretend** and **pain** followed by explanations of their use in combination.

Pretend

- chaff
- joke someone
- you aren't really doing a thing
- not telling the exact truth
- play at being something else
- make someone believe that something is something else
- act

Pain

- when you sore in your body
- when you hurt yourself
- something unpleasant
- physical discomfort
- a feeling experienced when you hurt yourself

Pretend pain

- clutch the painful area of the body and emit noises
- followed by laughter

The explanations for **pretend** disregard the specific sequence of behaviours encompassed by **pretend pain**. The word **pretend** is a particularly clear example illustrating the way in which a word shifts its emphasis in its co-occurrence relations with other words. The child's developing language skills include his ability to make these adjustments in the senses of words. Part of the meaning of the word is its numerous alterations in sense in different linguistic contexts.

It is concluded that the meaning of a word is revealed through its diverse uses.

5.1.2(e) Retention of meanings when words are combined in comparison to the meanings which subjects have assigned to them in isolation

The definitions or uses of two words in isolation did not hold when these two words co-occurred (as was illustrated above for **same pain**) and for **pretend pain** thereby elucidating the change in use that a word undergoes in different linguistic contexts. The younger children were noted to make less of a shift in use of each of the words than were the older children. The tasks for **do** as applied to **pretend** and **think** highlight this issue clearly.

The younger children applied their limited understanding of **do** in a variety of contexts. However, they did not take account of the "grammar" of the word(s) with which it co-occurred, for example, **think**. **Do** alters its use when applied with **think** and requires a different sense from that of 'action' as indicated by the adults' explanations. However, it must be emphasized that the 6 year olds did display some ability to shift the meaning of **do** according to the context. They used **do** differently in relation to **pretend** from their use in relation to **think** but both these uses were action-based. **Pretend** appears to be learned (understood) earlier than **think** (as concluded from the definition tasks for **pretend**, Q164; Q166) and 'What do you do when you pretend?' assumes an action as the answer. The 6 year olds applied this restricted use of **do** to **think** as well, thereby suggesting that they had not fully grasped the meaning of **think**, part of which would demand an altered use of **do**.

The only evidence that we have regarding what the child knows about the word **think**, is that which comes from his answer to questions such as this one. The following findings are of importance:

i) 6 year olds understood the question 'What do you do when you think?' at a different level from the 10 and 12 year olds and from the adults. It may be argued that they understand it equivalently to adults but are unable to express it because they do not have the language required for such explanations. However, even if it is accepted that 6 year olds understand the word **think** as do adults, they do not understand the phrase 'what do you do' or the word **do** in this phrase, in the same way as do adults. The 6 year olds provided a different answer from that offered by the adults. If a critic argues this point as applied to the phrase **what do you do** as well as to the word **think**, the argument would continue without resolution. However, no critic can deny that the answers provided by the children differ from those of the adults suggesting that the 6 year olds have a different understanding of these words.

If the view holds that the child acquired the concept first to which he attaches the word as a label, then this view assumes that the child acquired the concept 'THINK' in its totality. If this is the case, then there should be no differences between the answers provided by 6 year olds to the above questions and those offered by adults. Critics could still argue that the only difference is in the language used by the 6 year old, not in the concept which he holds. If so, then one might just as well say that they have a different grasp of the word **think**. A clear separation between the word and the concept is difficult and, in this case, the critic's statement contradicts itself.

ii) It was noted that adults gave explanations such as, "when you think, you concentrate on something" whereas 6 year olds described a context as in "you stand still"; "you frown". The adults' answers fail to take into account that a whole setting is important for a certain activity and that this setting comes to form part of our understanding of that word's meaning.

The 6 year olds focused on what appear to be adjuncts of the activity of thinking, that is, standing still and frowning are not critical for

thinking and they are neither necessary nor sufficient criteria for the word thinking. However, even though we may not display these different behaviours when we think, these behaviours comprise part of our concept 'THINK'. When asked 'What do you do when you think?' (Q161), the 6 year olds may focus on these adjunct behaviours because they do not have a complete grasp of do in this context, that is, as it relates to the word think; because their knowledge of the word think is limited compared with older children and adults' knowledge of this word. This is equivalent to overextension as discussed in relation to substantive word-meaning (Section 2.2.1a).

The present researcher suggests that "grammar" errors may occur because children underextend or overextend the senses of a word to other words in the language. An example of underextension is the comment by Ursula cited in introducing chapter 2 when she asks about pain. "Where will it go?" She uses the word go in such a way as to take no account of its specific sense in relation to the word pain. Go away can be applied to animate objects but not to words denoting non-ostensive entities. An example of overextension would be "I'll strangle your hand" which was mentioned in chapter 2. Here, strangle is applied to a word with which it is not usually used. The child has ignored the constraints which the word strangle imposes on it's use in the language.

It would be of interest to ask the 6 year olds whether we can think without frowning. Do they regard the frowning as an essential component of thinking or not? Questions such as 'Can you walk and think at the same time?' which were presented but which are not analyzed in depth in this study, have some bearing on this issue. Briefly, 6 year olds argued predominantly that thinking is an activity which has to occur 'all on its own'. However, thinking is not an activity separate from another ongoing activity but it occurs as part of the other activity. We are able to think about an unrelated issue while engaged in an activity, for example, doodling while thinking about something else. In this case, thinking can be separated from the activity itself. However, if we draw and think about it, we are "drawing thoughtfully". Here, the two activities have become one and the activity of thinking is not separate from the act of drawing. The

younger children regarded thinking as an activity separate from other activities.

The use of **same** altered its emphasis in each of the contexts with different criteria being important in concluding whether they were the same or not: **same ball** (emphasis on size and colour), **same dress** (emphasis on style) and **same pain** (emphasis on place or type).

5.1.2(f) Development of an awareness of fuzzy boundaries of semantically-linked words

The definition and fuzzy boundary tasks assess conceptual meaning directly. Questions were not asked about the notion of fuzziness itself: conclusions about the notion of fuzziness are, therefore inferred. Co-occurrence relations were not dealt with in these tasks. With development, it was found that the child directs his attention to the tangible, observable aspects of the word's meaning, progressing to a focus on the less tangible aspects.

For the fuzzy boundary tasks, variability was noted for subjects of all ages and no developmental progression was apparent. This was found for tasks such as Q36a-e (subject is presented with apples varying in degrees of size, colour and bruising); Q20 (the contrast between **same** and **similar**); Q140 (the contrast between **to lie** and **to pretend**); Q42 (the contrast between an **ache** and a **pain**). This individual variation within subjects in the use of a word and for any one subject on different occasions of use was anticipated for these fuzzy boundary tasks because we cannot stipulate the limits of each word and because senses of words overlap in certain contexts. However, despite this variation, people are able to communicate effectively with one another.

Sophisticated confusion was noted in the performance of the older children and particularly, in the adults' responses. This sophisticated confusion may be due to a greater awareness of fuzziness (discussed in section which follows, 5.2.1b).

The definition and fuzzy boundary tasks illustrated the difficulties we have arriving at a specific definition of a word. Fuzziness and the "grammar" of words prevent this. The tasks assessing each word in

different linguistic contexts reveal the diversity of uses and of explanations offered.

The fuzzy boundaries between words complicate the distinction between "grammar" of words and overextension. Fuzziness may be essential in the language to complement the notion of "grammar". Questions about fuzziness of linguistic concepts still remain, for example: Are we pre-programmed to have fuzzy concepts or are fuzzy concepts an end-point of learning or development? Are concepts inherently fuzzy from the beginning or are they the result of learning or induction into our society?

Andersen's study (1975) revealed a progression in the development of fuzzy boundaries in children. Part of the development of language seems to involve an ability to take fuzziness into account in our everyday use of language even without reflecting upon the notion of fuzziness itself.

5.2 Additional findings

5.2.1 The phenomenon of regression as a prominent feature of the developmental process where subjects are required to reflect upon word meaning

Two types of apparent regression were noted, firstly, a reverse trend in the developmental process usually at 8 years and secondly, what has been termed 'sophisticated confusion' by the present researcher. These will be detailed below.

5.2.1(a) Reverse trend at 8 years

Metalinguistic studies to date (for example, Tunmer and Herriman, 1984) have found an apparent decline in performance on metalinguistic tasks at 12 years of age when compared to the performance of 10 year olds. These studies were concerned mainly with syntactic forms as in complex sentences rather than with word meaning. Reversals in performance have also been mentioned by psychologists (for example, Feldman, 1980).

In the present study, a reverse trend was found most commonly at 8 years of age and occasionally at 10 years of age on a variety of

tasks. These findings are based on a small sample size and must be viewed with caution. However, the 8 year olds were the only group of subjects who did not follow the overall pattern and since this was noted in numerous tasks, it requires interpretation. The subjects were sampled randomly and an attempt had been made to control for external factors so that this finding was unexpected. In tasks where only one subject differed, this was not considered as indicating a trend (for example, Q14 definition of **same**, Q32a **same dress**, Q33 **same ball**, Q129 'I have a pain in my head but I can't feel it').

For the 10 year olds, there was never a discrepancy of more than one subject in comparison with the 8 year olds for that task. However, for the 8 year olds, a reverse trend occurred on the following tasks:

(a) For Q32c, **same dress**, when presented with dresses differing in sleeve length, more 8 year olds than 6 year olds concluded that the dresses were "the same". They failed to take account of differences or of numerous possibilities.

(b) For Q48 (picture task for **same pain** in which one boy is hit by a man and another has toothache), more 8 year olds answered that their pains were "the same", again failing to take account of differences to the extent considered by the 6 year olds.

(c) For Q76 ('Can you have my pain?'), a greater number of 8 year olds than 6 year olds interpreted 'my pain' as 'the same pain'. However, an overall developmental progression was found with increasing age. Younger children interpreted 'my pain' as 'the same pain'. Other children generally interpreted it as 'my pain'.

(d) For Q17 (**same apples**), a greater number of 8 year olds favoured an equivalence sense of **same** over an identity sense in explaining this task. Again, there was found to be an overall developmental progression from the equivalence sense to the identity sense with increasing age.

(e) For Q15 and Q45, a rephrasing of the question for **same pain** to check for consistency, yielded greater inconsistency amongst 8 year olds than amongst 6 year olds and an overall increase in consistency from 10 years of age.

(f) For Q41 (same anger), 20% of the 8 year olds responded "don't know" which was not found in any of the other groups.

(g) Q125 ('I love a pain') was regarded as acceptable by more 8 year olds than 6 year olds despite an overall developmental trend from 'not acceptable' to 'acceptable'.

(h) Q182 ('How do you pretend to be yourself?') was regarded as possible by more 8 year olds than 6 year olds.

It is of importance that no reverse trend was found at 8 years on a host of other tasks, for example, pretend to think, pretend to walk, pretend to write, pretend to be in pain and pretend to be angry. These tasks generally yielded homogeneous responses or individual variation over the entire group of subjects. It is difficult to group the tasks homogeneously because, in line with the present approach, each task alters the sense of the word in question..

It is of interest that changes in interpretation of the sense of do, see and feel occurred from 8 years of age. Six year olds generally interpreted these words according to their more common uses. From 8 years, children began to alter their interpretations and from 10 years, confusion was apparent in the subjects' responses. This may have some bearing on the reverse trend at 8 years for other tasks (mentioned above). Eight years may be the period during which changes occur in the child's understanding of words, shifting from one sense to another. This may give rise to an apparent decline in their performance because they are attempting to cope with novel insights.

Macdonald (1984) found that the youngest children in her study (5 years), although exposed to reading and writing instruction for about 8 months, did not offer intralinguistic or metalinguistic justifications the latter becoming apparent only two years later. She suggests that at this later stage, the child receives exercises which require that he "make explicit what he knows about language" and he begins to reflect on the form rather than on the content of language.

From the present findings, it would seem that a crucial change occurs in the child's approach to language tasks at about 8 years of age. Whether due to an increase in general cognitive control, to reading or to a combination, cannot be specified from the present findings.

However, we are confronted by a child who is inducted, progressively, into our adult way of life.

It has also been reported that learning problems are frequently recognized clinically in children of about 8-9 years of age who presented with no apparent difficulties in the preschool and early school years (for example, Levine and Satz, 1984; Levine, Oberklaid and Meltzer, 1981). Around this period, the child is moving into the concrete operational stage and, in addition, school work shifts from a visual to an auditory-verbal emphasis, both of which may be contributing factors. These children have been found to score high on tests such as the Peabody Picture Vocabulary Test (Dunn, 1965) but not on higher level comprehension tasks such as those of Wiig and Semel (1980) or on metalinguistic tasks (Shapiro, 1985).

Levine, Oberklaid and Meltzer (1981) carried out a study in which children who had presented with no learning problems in the early years, manifested with "developmental output failure" or "working disabilities" rather than "learning disabilities" in the early school years. They displayed inefficient productivity and encoding even though they presented with near-normal learning and decoding. Problems were found in areas such as fine motor control, visual retrieval, sequential memory, expressive language and selective attention. Expressive language problems included difficulties organizing a story, rapid word recall and syntax. These researchers explained that the changes were noted near the fourth grade when children progress from passive learning with its emphasis on decoding (for example, reading) to a more active form of education which emphasizes encoding on the part of the child (for example, writing essays, forming projects). Similarly, the present findings suggest that the period 8-10 years may be a particularly vulnerable one for the child in that he is in a transition phase which requires that he cope with a great deal of new information. Education programmes need to account for this as part of the normal developmental progression.

5.2.1(b) Sophisticated Confusion ³

The term 'sophisticated confusion' was adopted by the researcher to suggest confusion that occurs naturally as part of the developmental

³ Thanks to D. FRANKLIN for suggesting this term

progression. It is a 'real' confusion but it occurs at a high level in the development of word-meaning and it is, therefore, an advanced stage of development. The term 'confusion' usually brings to mind a negative connotation and seems to imply regressive rather than progressive behaviour. However, in its present context, together with the term 'sophisticated', it is used to suggest a natural (and perhaps, necessary) aspect of the developmental process. It constitutes advance into the stage which follows in the development of word-meaning.

The word *sophisticated* must not mislead the reader into thinking that only 'sophisticated' adults (as used in an everyday colloquial sense) display this behaviour. It is argued that most adults demonstrate some confusion on certain tasks relative to children. If this is so, then it may comprise a definite stage in development thereby enabling us to make certain predictions about the development of word meaning at the higher levels. Future research would be required to determine whether this is discrete as a stage, complying with those characteristics outlined by Piaget (*ibid*) and others (see chapter 2). For the same pain tasks, adults as well as the gifted 12 year old, displayed confusion arguing that if one talks of "same pain", one suggests that there is "one pain which is shared".

Sophisticated confusion was displayed by one 6 year old (S49) only amongst all the subjects of 6, 8 and 10 years. S49 answered for Q15 ('If I say I've got the same pain as you, what do I mean'), "wrong - 'cos you don't know if I've ever got the same pain as you". He demonstrated conviction in this answer for different tasks. (It should be noted that this is the same child who favoured an identity rather than an equivalence sense of *same* in contrast to his peers). This conviction may be due to the 6 year old's 'narrow perspective', an outcome of his relatively limited experience both with regard to language use itself and with regard to his knowledge of the external world. In contrast, sophisticated confusion in adults appeared to relate to an increasing awareness of the diversity of uses of words.

This diversity is due to the fuzziness and "grammar" of words, characteristics of word meaning of which adults are not consciously aware. These errors do not violate our understanding in terms of our

knowledge of the world. Rather, they reveal our confusion about language which results when we reflect too deeply on it. Adults found it difficult to be precise in their answers and any attempt at precision led to their qualifying answers, contradicting facets of other answers, and so on. The adult's extensive experience both with language and in terms of knowledge of the world may result in their considering one use of a word in relation to another. If the uses of a word are linked by means of a "family resemblance", any attempt at precise definition of the word yields a lack of clarity or a distortion of the word's meaning. Sophisticated confusion seems, therefore, to be a natural part of the end-state of the developmental process.

Similar confusion occurred for the **same apple** task for which it was argued that two apples can never be exactly alike and that **same apple** necessarily refers to one apple which is shared. It is of interest that this argument was not propounded in relation to the other **same** tasks (for example, **same ball**, **same dress**, etc).

A clear example of sophisticated confusion is the sentence offered by a Masters student in Philosophy for Q13, 'Make up a sentence with the word **same**'. He answered, "This cup of coffee is the same as this cup of coffee" (indicating the one cup of coffee twice). In everyday language, we would not use **same** in this way as it fails to add to our communicative intent.

The distinction between sophisticated confusion and an error of "grammar" is clearly demonstrated by responses to the **same** tasks dealing with continuity over time (**same leaf**, **same tadpole/frog**, **same ship**). It was argued, for example, that the leaves are not "similar" because they have changed over time. This violated the uses and meaning of the word **similar**. In contrast, arguing that one cannot talk of **same pain** because that would suggest that there is one pain that is shared, illustrates confusion. In everyday language use, we do say "same pain" in order to suggest that there is a similarity between our experiences of pain even though we cannot verify the extent to which they are the same. Verification plays no part in our use of the word **same** in many everyday contexts.

Confusion seems to bear a complex relationship to comprehension, varying at different periods of development. It is suggested that, at first, the child does not comprehend the probe and is, therefore, not confused by it. Inconsistencies displayed by the 6 year olds on certain tasks also fall into this level. Subsequently, the child may comprehend the probe but answer with conviction, providing either an appropriate non-linguistic answer, or a linguistic justification. If the child answers with conviction, it implies that although he has understood the probe, his understanding is limited in that he has failed to take into account its subtleties.

From the responses of the gifted 12 year old, it would appear that once we are able to grasp the probe 'fully', we tend to become confused. If this child had displayed no confusion, it would have suggested that confusion is a level attained independently of one's comprehension of the question.

Sophisticated confusion seems to arise predominantly from an attempt to remove the word from its everyday context and to philosophize about it. An example of confusion within a task is clear from one 12 year old's answer for Q75 ('Where do you feel an ache?') :

"you feel it - well, like - in your head" (as for pain/not?) "yes and no. Most of the parts of the body you can have a pain, you can also have an ache there. But certain parts, like... say you've got a headache, then your head is sore and it...can't have a headache, it's not like a pain, it doesn't go - like one thing it goes on and off - a head pain - you can but - not usually..."

Sophisticated confusion relates not to performance variability at the level of language use but rather, to performance variability at the level of metalinguistic awareness. Additional studies may indicate whether confusion occurs in different forms at different periods of development.

Confusion was found on definition tasks, for example, certain adults and 12 year olds argued consistently that *same* refers to one thing (identity notion) whereas *similar* refers to two things (equivalence notion) and that *same* can never, therefore, be used to apply to two things. They gave explanations such as: "...so people say 'same' but

they're actually wrong!" This demonstrates confusion in that this use of **same** in everyday language would not be 'wrong'. Rather, our everyday language use determines the meaning of **same**.

The following quotes from another two adult subjects also reveal confusion :

Same I think is stronger than **similar**.
Similar, I would tend to think would have more extraneous features than **same**.
(Classify how many?) um...well, um...**same**
I would tend to think one or two; **similar**
I would tend to think...three, four, possibly five. Beyond that it's getting to be, kind of - different...

Same is one (object) and **similar** would be two different things.

On other tasks, the 12 year olds and adults provided more succinct examples and explanations than did the younger children.

Sophisticated confusion is evident from the following responses : One adult argued for **same** apples (Q35)

"They the same - wait, let me think - I'd say they similar, ja, 'cos two things can't be the same - wait! they can! they won't be the same - if you think about apples, you know, molecules etcetra...but they similar".

Another adult argued on this task that they are

"similar - they're the same shape and size but two apples - you can never have two apples which are the same".

One adult suggested for Q33 (**same** ball) that

"In my personal experience, one sort of says **same** rather glibly without thinking of the implications" that even though the sizes are different, one could still say "same" or maybe "similar".

In Q49 (**same** pain), the 12 year old, gifted child argued in accordance with his view of **same** in all the other tasks, that "it's the same kind of pain, not the same pain...if you say: 'They've got the same pain', it would be saying they share it". This reveals a level of confusion. In everyday conversation, we do say 'I've got the same pain as you' to mean 'I've got the same kind of pain...'. This subject had emphasized

that two things can never be the same. However, this is not how we use the word same in our everyday language.

The issue of sophisticated confusion is related to that of metalinguistic awareness and language use. Metalinguistic questions about word meaning were found to lead to sophisticated confusion at the higher developmental periods. When we bring language back to its natural uses, sophisticated confusion is not apparent. The younger children constantly returned to examples from their own experiences (see section 5.2.1)

Although superficially equivalent in content, certain answers may be stimulated by very different underlying reasons, at different age levels. For example, at 6 years, a narrow perspective and inability to take into account all the relevant facets of the situation(s) may lead to a certain conclusion which is arrived at too, by adults who are confronted by so broad a range of issues that it leads them to sophisticated confusion. This is necessarily hypothetical but the data shows very clear evidence of vacillation. Another possible conclusion would be that sophisticated confusion can occur at any age level and it may then be postulated that this is due to the fuzzy boundaries between words and to the subtle alterations of sense due to the "grammar" of words in different contexts.

It would appear that sophisticated confusion occurs at an advanced level of language development. Six year olds may not become confused because they do not understand the question. Eight and ten year olds may not have reached the level where they are able to be creatively imaginative with language or where they are able to philosophize. Twelve year olds become confused: they understand the question and, like adults, they move away from our everyday use of language.

Unlike syntax which is more clearly explained by a linguist than by a lay person, word meaning leads to sophisticated confusion at the higher levels. To have sophisticated confusion rather than clarification as our end-state would appear to be counter-intuitive. We would imagine that philosophers could arrive at clarification by drawing on theories which explain language. However, it is argued that the very nature of language, its chameleon variability in different environments and the "family resemblance" link between the

uses of any particular word, prevents a precise theory from being formulated. As Rhees (1936, cited by Kenny, 1982, p.40) states:

A philosopher has temptations which an ordinary person does not have. We could say he knows better what the word means... But actually philosophers generally know less. Because ordinary people have no temptations to misunderstand language .

5.2.2 Variation in the child's performance over time when required to reflect upon word meaning

Out of a total of 192 tasks (for all subjects) used to check test-retest reliability, there were only eleven answers which were incompatible over the two testing sessions. There was only 6% variance which was unaccounted for with 94% consistency, suggesting that the findings are not spurious (see Appendix H). These findings suggest that the criteria drawn on to explain the words tested may be viewed across all subjects in the entire sample rather than for each individual child.

The majority of subjects in the present study were consistent across these sets of tasks (the measure of internal consistency) which suggests that our ideas about word meaning (those words assessed) are sufficiently stable to lend themselves to specific investigation. This finding also suggests that we can aim to 'get to' the child's thinking, that is, to his 'deep' understanding of these words.

If the child answers inconsistently on the two tasks, it could be that the tasks are not equivalent or that the child is inconsistent. If the child answers consistently across the two tasks, it implies that the tasks are equivalent and that the child is consistent. Across the group of subjects as a whole, if most subjects are consistent, it suggests that the tasks are equivalent and that the few inconsistent subjects are genuinely inconsistent. If most subjects are inconsistent but few are consistent, then the tasks would most likely be equivalent or be able to be viewed as equivalent. However, consistency for relatively few subjects may be simply fortuitous. If all subjects are inconsistent, then the tasks are not equivalent. If they provide additional or different criteria when explaining the two questions, it adds an important element to our understanding of the

complexity and diversity of the task and of the particular word being assessed.

The interval between the two tasks is important to take into account. The child may assume that the tester requires the same answer or may equally assume that the tester would not ask the same question twice. In the latter case, he may deliberately offer a different answer, that is, he may attempt to view the question in a different way.

Answers provided from one task to the next are most often not worded in exactly the same way so that it is left to the tester to judge whether these two answers are equivalent or not. Contradictions can clearly be recognized. However, it must be kept in mind that, if the two tasks are answered differently, this could possibly be due not to inconsistency on the part of the child but rather, to the fact that the task can be understood in different ways. This is impossible to rule out as a factor. If the child changes his mind, on these issues, then the inconsistency lies within the child.

It is argued that the child's level of language and explanation is his level of understanding of the task(s): to say that 6 year olds may have a certain concept but that they do not as yet, have the necessary language to express this knowledge, is questioned. We cannot argue that the probe question is not a valid one to ask 6 year olds because it is too difficult for them. Rather, it is their very inability to recognize the subtleties of the probe question which enlightens us as to their level of understanding of the probe and which illustrates their level of ability relative to that of the older children.

For this reason, the child's level of answer to any particular question must be taken into account. Consulting his previous answers in order to check the child's ability may actually gloss over some of the subtle qualitative differences between questions. This approach would enhance the similarities between questions and undermine the differences, and may credit the child beyond his level of performance.

The present findings do not allow for clarification of the following :

i) whether inconsistency reflects a transition phase in development;

ii) whether inconsistency is related to the issue of conviction generally and, if so, in what way;

iii) whether certain children and adults are simply more definite in their ideas than others; and

iv) related to (iii) above, whether there are 'types' rather than stages of development in word meaning, that is, qualitative types that can occur at any period of development rather than developmental stages in word meaning.

Conviction in 6 year olds may be due to their not grasping the subtleties of the probe question(s). There is also a degree of instability in the 6 year olds' answers, that is, at times, they are readily swayed by the probes.

5.3 Implications of the present findings

Included in this section is a discussion of the following:

5.3.1 Trends in the development of word meaning during the primary school period.

5.3.2 The role of ostensive definition and the concrete object in the learning of non-ostensive words.

5.3.3 "Grammar" and the use of the term 'vocabulary'.

5.3.4 Generalizing ability within constraints.

5.3.5 Implications for previous linguistic and psycholinguistic approaches to word meaning.

5.3.6 The "grammar" of words and Piaget's studies.

5.3.1 Trends in the development of word meaning during the primary school period

Fodor's criticism of the stage approach (1980) on purely logical grounds (Section 2.2) increases the need for caution when integrating the present findings. He argues that any progression in children's development occurs through biologically-determined levels. The

present findings may be interpreted in line with Fodor's argument and may be explained as biologically-determined levels of development. On the other hand, these findings may reflect the increased mastery of older children of the scholastic definition game in comparison with younger children. Older children may be more indoctrinated with the picture of language as a 'definitional calculus'. The use of 'general explanations' might be a symptom of sophisticated confusion.

To date, researchers have not been able to propose stages for the development of word meaning: it would seem to be nearly impossible (Macdonald, 1985). Rather, trends or tendencies are descriptive of research findings. It is important to note that different words are subject to different "grammar" errors and that the linguistic context affects the use of a word at any particular period. This relates to the finding reported by Macdonald (1984) that the different aspects of metalinguistic awareness have been found to emerge at different periods of development.

A summary overview of developmental trends found in the present study is presented below (see table 14). This table necessarily provides only a broad outline of developmental trends. Uniformity and variability of responses across all subjects are the limiting conditions with regard to these trends. As was discussed in chapter 2 (section 2.2.3c), it must be kept in mind that the subjects were drawn from a particular subgroup of the population. The findings may reflect universal trends, possibly developing at different rates in different population groups; or they may reveal culture-specific trends. Normative studies would be a useful follow-up in confirming these possibilities.

Table 14

Summary overview of trends at different periods of development

Age Level	"Grammar"	Strategies
2 - 4/5 years (Based on pilot study only)	<ul style="list-style-type: none"> - "grammar" errors in production - restricted use and understanding of words across contexts 	<ul style="list-style-type: none"> - Metalinguistic tasks difficult
6 - 7 years	<ul style="list-style-type: none"> - "grammar" errors minimal in production - errors at level of comprehension on certain tasks 	<ul style="list-style-type: none"> - example as explanation - use word itself in explanation
8 - 9 years	<ul style="list-style-type: none"> - "grammar" errors minimal production - few "grammar" errors in comprehension - apparent regression on certain tasks 	<ul style="list-style-type: none"> - example as explanation-> example in explanation
10 - 11 years	<ul style="list-style-type: none"> - "grammar" errors minimal in production - few "grammar" errors in comprehension - awareness of metaphoric language 	<ul style="list-style-type: none"> - example in explanation-> general explanation
12 - 13 years	<ul style="list-style-type: none"> - no "grammar" errors in production or comprehension - awareness of ambiguity begins on the present tasks - awareness of metaphoric language at high level 	<ul style="list-style-type: none"> - sophisticated confusion begins on metalinguistic tasks
Adults	<p>As for 12 - 13 years but increase in complexity</p>	

5.3.2 The role of ostensive definition and the 'concrete' object in the learning of non-ostensive words

The present findings suggest that ostensive definition does not fully account for word learning. If we could learn the word's entire meaning by pointing it out, then a word would retain a single use or sense when applied in different contexts and definitions would be fully explanatory. Furthermore, forming a mental image cannot be of importance in understanding and using the word. If a word alters its sense according to the context, then it is impossible to ascertain what mental image of the word would be built up. Would it be the same from one occasion of use to the next? If an image is built up in the mind, it must be incidental to the learning of word meaning and to the use of the word. Definitions fail to encompass the meaning of a word but they include a part of its meaning thereby comprising one "language game" in which the word is used.

When the findings for the question 'What do you do when you think?' are viewed in relation to the issue of ostensive definition, they indicate that ostensive definition plays a role in the learning of the word **think** or of the concept 'THINK' but they also highlight the limitations of ostensive definition as fully explaining the learning of the word **think**. We are able to point to a frown or to someone standing still but we cannot point to a thought. The child has learned the word in that context and the frown or the action of standing still is logically bound to the word: these are not inessentials. Since we use specific criteria to determine that someone is thinking, it suggests that these behavioural criteria are important parts of the concept 'THINK'.

It is evident, too, that ostensive definition plays a limited role in the learning of non-ostensive as well as substantive words. As an example, **apple** is as 'concrete' a word as possible, but, **same apple** imposes a particular sense on the "grammar" of **apple** in relation to that of **same** and determines whether one or two apples is/are being referred to here.

The language that the child has in his repertoire will limit his answer about the word **think**. However, his language ability forms part of his grasp of **think** at any particular period of development. In

analysis, the content of answers versus language use has been taken into account. As an example, with pretend which seems to be acquired earlier than think, the 6 year old uses the word 'chaff' to convey what an older child might convey in 'play-act' but the content or the idea expressed is equivalent. (In contrast, 'frown' was used by 6 year olds and 'concentrate' by older children, in explaining think). It is tempting to regard the word chaff as "childrenese" and to ask what words the child could use to explain think in the same way that he can use 'chaff' to explain pretend? Adults too, found think difficult to explain. Even if we find no words in the child's expressive repertoire which are suitable, it does not alter the ongoing argument: the child does not have these 'adult' concepts in his repertoire and his focus on overt behaviours is his understanding of think at that period. A biologist may, similarly, give a biological explanation for 'What is an elephant?' which a child cannot do as he lacks the biological terminology. The question is: Does the child want to answer in this way but lack the necessary language to do so? It seems rather, that the child's idea of think differs from that of the adult, thereby giving rise to the different explanations.

Adults may be influenced by the type of answer they think they should be providing (for example, an answer equivalent to a paradigm for a mathematical definition). Children may answer more freely, be closer to a 'good' answer, because they are not influenced by this factor, that is, by what kind of answer they should be giving. Our experience may constrain us as adults, leading us to provide an analytic answer. When asked:

'What do you do when...?'

Adults tend to answer in the form of a definition, as in

'to think is to...(for example, concentrate)'

Children on the other hand, answer in the form:

'when you think you...(for example, frown)'

The child is not yet constrained by the false sophistication of the adult.

The increased language level of the older children and adults as well as their increased educational level and cognitive abilities must not be regarded as variables unaccounted for in this study. The school situation may lead the child to answer these questions in certain ways

but this is all part of the child's induction into language, society and culture. These are not variables but factors inherent in the developmental process. All children pass through these "stages" and their development of language must, of necessity, include these other developing skills and experiences.

It is suggested that non-ostensive and substantive words are bound by similar constraints in the learning process, for example, **pain** is learned in the same way as **chair** but in different "language games" (see section 5.3.2). Ostensive definition comes into play more with substantive words but again, it is not fully explanatory. Ostensive definition does not tell us how the child learns to use the word (for example, **chair**) in a variety of different contexts, for example, 'I'm sitting on the chair'; 'I'm pretending to be a chair'; 'Rover's hiding under the chair'. As Wittgenstein (1953, pt.97) states:

Thought is surrounded by a halo...
Whereas, of course, if the words
"language", "experience", "world"
have a use, it must be as humble a
one as that of the words "table",
"lamp", "door".

An ostensive definition account of the learning of word meaning fails to explain the process which underlies the child's development of words. Rather, from the findings, it appears that children progress from the senses of words as they cluster around physical objects to their senses as applied to non-physical entities. This would suggest that words are not all equally 'humble' either heuristically or conceptually. These uses may underlie the extended applications of words that develop in the later stages. We do know that certain words are learned earlier than others and these are generally described as 'concrete' or 'substantive' words.

In the use of **pain**, it was found that **same pain** changed from an emphasis on place to that of type in these tasks. This suggests that for younger children, the word **pain** may possibly have greater kinship with words denoting physical objects than for older children. It is not being argued that words are either 'concrete' or 'abstract' but that the child will first understand the word in a physical object sense (for example, **same ball**) and only later in other contexts (for

example, same pain). His early understanding of same pain may not include the sense of same as applied to non-ostensive words.

The tasks assessing the word in a diversity of linguistic environments investigate conceptual meaning by analyzing the way in which one word influences the sense which is attached to the meaning of the word with which it co-occurs. Words such as same and ball, same and pain, pretend and walk can occur together and do not, therefore, violate collocational, selectional or stylistic constraints. However, it was found that the child develops from being able to interpret these words when they occur with words which have external reference, focusing on that aspect of the word's meaning which pertains to something observable to interpreting these phrases in more 'abstract' terms. As an example, same ball appears to be learned earlier than same pain with the latter leading to sophisticated confusion at the 12 year old and particularly, the adult levels. Same leaf, in a task assessing sameness or continuity over a period of time, led the youngest children to focus on observable aspects of the situation such as the colour of the leaves whereas the older children ignored these changes in drawing their conclusions.

5.3.3 "Grammar" and the use of the term 'vocabulary'

Piaget drew our attention to stages of development in children's thinking and to how children's thinking differs from that of adults: it led to important consequences in our understanding and assessment of children. Similarly, children do not use words in the same way as do adults. To date, vocabulary studies have imposed an adult perspective on the child.

It was found that children of 6 years of age have only a partial understanding of certain selected words when tested on numerous tasks, even though they are able to use these words appropriately in their spontaneous language. Their understanding was found to develop with increasing age. Vocabulary studies to date would regard a child as 'having a word in his repertoire' if he is able to use it appropriately. This view assumes that a word is acquired once and for all with no further development occurring. However, from the present findings, it is fallacious to conclude that the child 'has' a word in his vocabulary. Questioning the child about word meaning reveals his

partial understanding and we are required to modify our use of the term 'vocabulary': our use varies depending on the age level with which we are concerned. A child may be said to have a word in his repertoire if, at a particular age level, he has the use and understanding of that word within the variety of contexts appropriate to children of his particular age group. With age, the uses of words already in his repertoire become extended and the number of words in his repertoire also increases.

Psychology studies on word frequency (Section 2.3.3b) commonly record words as they hear them expressed by children of different age levels. However, this approach takes no account of the child's understanding of these words and, particularly, of his understanding over a diversity of contexts. It takes no account of the development in word meaning that occurs beyond the preschool period. A child of 6 years may use a word in the same number of contexts as a 12 year old but their understanding and explanations of use will differ. It is this aspect for which vocabulary studies fail to account.

Vocabulary tests regard the child's use of a word as indicative that he has the word in his repertoire and score for an all-or-none response. Rather, the tester should delve beyond this surface level to the child's grasp of what he understands when he uses the word in different linguistic contexts. They draw on limited definitions of words and do not take into account how senses of words alter according to context nor how a child's grasp of a word's meaning alters qualitatively with development.

In the present study, the majority of children displayed no difficulty in using the word correctly, as was noted in the tasks assessing initial sentence formulation. Yet, with further questioning, they revealed differences in performance with age and from one task to another using the same word.

The relationship between comprehension and production requires reconsideration in light of the "grammar" of the word vocabulary, and is discussed in the section which follows.

5.3.4 Generalizing ability within constraints

Leech (1974, pp.30-31) explains that the categories of language are

partially arbitrary: "conceptual boundaries often vary from language to language in a way that defies principled explanation"; and "...languages have a tendency to 'impose structure upon the real world' by treating some distinctions as crucial, and ignoring others". Leech (ibid) discusses the two processes of generalization and differentiation as being involved in concept learning. Generalization is the process whereby the child extends a name from certain referents to all objects which share attributes of those referents. Differentiation, the complementary process, restricts the reference of the word thereby excluding certain objects from its range of reference. Since both processes cannot be learned simultaneously, the child either overgeneralizes or undergeneralizes (Leech, ibid).

Children have an innate capacity for generalizing, that is, they have the ability to combine words in novel ways. Children have the flexibility to be able to shift the senses of a word in different contexts. The "grammar" of each word in the language differs from the "grammar" of any other word in the language. It is unimaginable that the child hears the word used in every single context in which he is subsequently able to apply it. To generalize a word's meaning to a variety of "language games", the uses of which bear a "family resemblance" to each other rather than being exact replicas of each other, would appear to be a remarkable ability. We know that each word could not possibly be taught (whether directly or indirectly) nor could a child be exposed to every possible use of a word in every possible linguistic context. Each word has an infinite variety of uses and this would be a task so formidable as to prevent the child's learning language at all. It appears, therefore, that there must be a process underlying the child's ability to learn the "grammar" of words and that this must have some innate capacity, for example, his innate ability to make generalizations from one context of use to another. The child may not even detect that he is using the same word, for example, **feel** in **feel the dog** and **feel the pain**. This generalizing ability may parallel our ability to group items in the environment selectively in terms of their similarities within a particular context (which may be grouped differently in another context). As Leech (ibid, p.39) states:

It is both the great virtue and the great vice of linguistic categories that they

simplify things for us, by disregarding many of the boundaries and gradations that could theoretically be distinguished.

Furthermore, the child is able to exercise selective constraints in his uses of a word, for example, pain can only occur with certain other words in the language (we could not say: 'I taste pain'). It is not being suggested that the words, themselves, are innate but rather, that certain organizing principles are innate. The ability to generalize could not be learned and is essential for using language. The "grammar" of words highlights the importance of this generalizing ability in our language use.

The "grammar" of words for any language is specific to that language. This aspect of the language would seem, therefore, to have no innate factors as a basis. It is tied up with the cultural and social life of the child (Bruner, 1966, 1977, 1978). Language is part of a larger process whereby the child is inducted into the form of life of his particular cultural group. However, all children in all cultures learn language. The process underlying his learning of the "grammar" of words would seem to be universal.

The younger children may display greater flexibility because they do not yet take account of the constraints of language. Hence, their use of language frequently parallels the figurative language of older children and adults. However, their restricted knowledge of the world imposes other limits on their use of language which may lead to their displaying conviction when probed. Their limited real-world knowledge restricts the possibilities that they would otherwise take into account.

5.3.5 Findings in relation to previous linguistic and psycholinguistic approaches to word meaning

5.3.5(a) The meaning of a word alters according to the context in which it occurs. This suggests that the distinction between 'linguistic concepts' and 'Piagetian concepts' is a useful one since these concepts are not subject to the same influences.

5.3.5(b) The present research questions the psychological reality of the feature theory approaches. "Grammar" was found to describe

development beyond the preschool period. It was argued that a core theory of meaning is limited in explaining word meaning during this period and context was regarded as important when explaining non-ostensive word meaning.

5.3.5(c) The examples presented in sections 5.1.2(d) and 5.1.2(e) for **same pain** and **pretend pain**, highlight the difference between the present interest in co-occurrence relations and that of other researchers such as Katz (1972) and Leech (ibid). Stylistic, collocational and selectional constraints are of interest in the present study only insofar as they contribute to our understanding of certain uses of the words investigated, For example, **give pain** may be partially explained by means of selectional restrictions. **Pretend** in relation to **walk** versus **be in pain** versus **sing** illustrates the present focus on conceptual meaning. **Pretend** can occur in all of these linguistic contexts but, in each case, it encompasses an entire "language game", the latter stemming from the meaning of the words **walk**, **pain** and **sing**.

5.3.5(d) The relationship between "grammar" and syntax is a complex one. Children of different age levels answer the questions differently (examples as explanations versus general explanations) hence revealing their varied interpretations of the phrases ('What is a...' at the level of "grammar"). It is also suggested that the meaning of a word, its "grammar", determines the way in which it is used syntactically rather than the reverse.

The present findings challenge a core theory of meaning, for example, that of the feature theory approach. The latter do not adequately account for the way in which a word alters its sense according to the linguistic context in which it occurs.

It was found that younger children apply words in restricted senses only. A particular linguistic context fails to elucidate for them any specific sense of the word: they tend to ignore these particular senses in favour of their usual understanding of the word and they display conviction in their answers when probed.

5.3.5(e) Overextension and the "grammar" of words

The child's overextension of a word, for example, **dog** to include all

animals, is a process similar to that of the "grammar" of words and may actually be explained by means of "grammar". Similarly, the child may understand the word **do** at a comprehension level (on metalinguistic tasks) to suggest an activity' and may overextend this sense of the word to **think** when asked the question: 'What do you do when you think?'

It may be useful to investigate children's overextension of non-ostensive words as has been done with substantive words, for example, does he use **pain** to mean **ache**. The child's spontaneous use may not be revealing in this regard. However, when he applies the word, we need to question him in simple terms about his use so as to investigate any further extension of the word.

5.3.5(f) Clark's contrast approach to word learning (1983) may apply equally to words as they co-occur in specific linguistic contexts. As an example, the child may understand **feel** to mean 'touch' which he then applies in the context of **feel pain**. It is only when he gains a better understanding of the "grammar" of the word **pain** that he will better understand **feel pain** as meaning 'experiencing pain' or perhaps, his increasing understanding of the word **feel** will add to his understanding of the word **pain**. This suggests that the child unintentionally contrasts the senses of a particular word with the senses of another word, prior to his being able to correctly understand the two words in combination. It is important to emphasize once again that the child's spontaneous use will not reflect the depth of his understanding as metalinguistic questions are able to do.

5.3.5(g) The present findings in relation to the claim that word labels are mapped onto preformed concepts

The young child displays metalinguistic differences from the adult. This difference suggests that the view which considers the word to be a label attached to a previously-formed concept, is erroneous. This view would only hold if the concept, once learned, undergoes no further changes through the course of development. If this were the case then it would suggest that the idea of **think** is something in the mind, perhaps an image in the mind. This poses two clearly recognizable problems. First, there are arguments against the idea of the concept as an image (for example, Wittgenstein, 1969, pp.10-11). If this were the case, the child would have no means of answering

questions such as 'What do you do when you think?' He would either answer as an adult does (implying that he has the concept) or he would not answer at all indicating that he does not have the concept. This was not the case in the present task.

The findings revealed differences between the children's and the adults' answers. Behaviours such as frowning are an integral part of the concept of **thinking**, even for adults. The child focuses on these aspects because he is closer to having learned this word. Furthermore, these 'adjuncts' for any particular word are not arbitrary: a few characteristics are identified with a particular word (see picture task Q100) which both children and adults would commonly associate with that particular concept. These facets are, therefore, not peripheral to the idea of thinking but are an important part of its meaning.

The 'name as label' theorist would argue that the child does not yet have the concept '**THINK**'. However, the present findings reveal that he is able to use the word **think**. If the concept precedes the word in the acquisition process, then his using the word necessarily suggests that he has the concept. Contrarily, the present approach views the development of the word as occurring along a continuum.

It is not the case from the present findings that the child understands the word as does the adult nor that he uses the word and therefore, must necessarily understand it as does the adult. If it is argued that the child may rather interpret the question 'What do you do..' differently from the adult, it implies that he has a different understanding of this question from that of the adult: again, a progression in the development of word-meaning is suggested.

5.3.5(h) Prototype approaches and a core meaning

The approach adopted in the present study, namely, that of "grammar" of words, "language games" and "family resemblances", is not subject to the criticisms levelled against the feature theories: it favours a holistic approach in language learning as does the prototype approach; it includes "family resemblances" as did Rosch (1973a, 1973b, 1975) in her highly acclaimed work; it does not deny that a word has some stability of meaning but it denies that there is a 'core' meaning which encompasses the entire meaning of the word. It must be

emphasized that Rosch was not concerned with assessing words according to the linguistic contexts in which they occur, as is the focus of the present study.

The present findings do not contradict the idea of "family resemblances". "Chaff" was a common definition offered for the word **pretend** as was the suggestion that **pretend** implies "doing something that isn't real". However, this does not suggest that there is a core concept for all uses of the word **pretend** as this is only a part of the meaning of **pretend**.

It is argued that words do not have a central core meaning but that their meaning is their use in a variety of linguistic contexts. However, it is not being denied that there is some stability of meaning. If there were no stability of meaning, we would be able to use words as Humpty Dumpty did:

"I don't know what you mean by 'glory'", Alice said.
"I meant there's a nice knock-down argument for you!"
"But 'glory' doesn't mean 'a nice knock-down argument,'" Alice objected.

"When I use a word", Humpty Dumpty said, in rather a scornful tone, "it means just what I choose it to mean - neither more nor less".
"The question is", said Alice, "whether you can make words mean so many different things".

As an example, words such as **pain** and **ache** overlap in their senses (their boundaries are fuzzy). However, the areas in which no overlap in senses occurs is not what constitutes a core of meaning for each word. The meaning for each of these words comes from this one sense together with all the other senses in which the word is used.

i) Common answers were found for all the children on the definition questions because there is only a small vocabulary in English with which to explain **pretend**, that is, a small group of words which allow for paraphrase. All subjects tend to draw on this same set of words. However, when they use the words "chaff" or "doing something that isn't real", they do not necessarily build up a mental image in their minds. Views which suggest that there is a 'core' meaning imply that an image of the meaning may be built up in the mind. It must be remembered that Rosch (ibid) suggested this for category membership which may hold but which does not apply to word meaning as assessed in

the present study. Even with paraphrase, if we favour a core meaning approach, we would have to account for the core meaning of each of the words in the paraphrase which would go on indefinitely. All we would be able to conclude then would be that: 'pretend is pretend'. We do not learn a word's meaning through its definition since, if we did, we would have to go on defining the definition ad infinitum.

ii) **Pretend** does not always mean "doing something that isn't real". As an example, acting on stage involves acting in every way like the person one is trying to be. The broader situation is not real but there is also a shift in emphasis with regard to what is not real within the situation.

Similarly, for the word **same**: it may be defined as 'two things alike', 'having things in common', but, this does not mean that we have to, or that we can, build up a picture of "common" in our minds whenever we use the word **same**. The present researcher argues that words do have definite, stable meanings. However, this meaning is revealed by a study of the corpus of language use, rather than by establishing the core meaning within the word.

5.3.6 The "grammar" of words and Piaget's studies

Piaget's epistemology is essentially built on the growing child's logico-mathematical interaction with an ever-extending physical environment. It can be argued that Piaget has underestimated the importance of children's constructive interaction with other environments, such as the linguistic one (Karmiloff-Smith, 1977, p.393).

Although it must be kept in mind that Piaget's model was not designed to explain language acquisition and that it resists such application (Sinclair 1976a, 1976b), the child's conception of the word will affect his use of language. As an example, the child may use **pain** with **car**, **pins** and **needles** with **come out**, and **sun** with **follows (you)**. These errors of "grammar" appear to be linked to the child's view of the world at particular stages of development.

Similarly, children anthropomorphize with regard to their world. To the extent that a car may be fantasized as being 'like a human', it can be said to be angry. In this case, no "grammar" issue is revealed. However, if regarded as an inanimate object, then this task

reflects an error of "grammar". Part of the meaning of the word is the way in which it can be used in the language. In order to use the word **pain**, the child must come to know that we can say:

'I have a pain in my toe'

But not: *'I have a pain in London'

that is, that **pain** 'goes with' in but only when in is used in specific ways;

that we can say:

'I am in pain' but not *'I am in ache'

and: 'I am aching' but not *'I am paining'

Piaget's study of naming with older children, in which he asks questions such as: 'Why is the sun called "the sun"?' aimed to determine how the child learns to call the sun, 'the sun'. However, what he is also asking is: How does the child learn to answer the question:

What is x called?

or Why is that called that?

In other words, there is a language factor that enters into these questions and the results can be interpreted according to the "grammar" of the words in the question. Piaget draws on a particular "language game" in asking these questions and there may be a developmental progression in the child's answering questions related to 'calling' something by name. Piaget did not take the language into account in his interpretation of children's answers. If reinterpreted from the perspective of "grammar", Piaget's findings can be understood in a different way. This does not deny his cognitive basis but suggests that the child's grasp of the language at a particular stage (his grasp of the language is related to a cognitive stage) determines his answers. As with the tasks in the present study, the young child may initially understand **where** as referring to something external to himself and only later, as suggesting something internal.

It would also be of interest to assess children's knowledge of words such as **same**, **more** and **less** from the perspective of "grammar" and then to assess these children on concrete operational tasks. It is possible that their level of understanding of the "grammar" of these words will elucidate why certain children perform better than others

on these tasks and why a particular child may not perform equally on a number of concrete operational tasks.

5.4 Model of the development of the meaning of non-ostensive words in primary school children

The present findings for the words **same**, **pain** and **pretend** together with their semantically-linked words highlight the theoretical notion of the "grammar" of words that the senses of a word alter according to the words with which, and the expression and discourse types in which, they occur. This was concluded from the explanations provided by primary school children regarding their understanding of these words when applied in different contexts. For any particular group of children and for the group of adults, the meaning of a word altered (in emphasis) according to the context in which it occurred. In addition, subjects' definitions of a word encompassed only a part rather than the whole of its meaning. Subjects were unable to demarcate clear boundaries for words and semantically-linked words were found to overlap in certain of their uses.

It appears on the basis of the above conclusions that word meaning is by its very nature, difficult to formalize in an elegant theory. We have no rules to govern our use since the rules of use vary from word to word and for any particular word, from linguistic context to linguistic context.

Perhaps we need to formalize strategies for explaining how the meanings of words are learned rather than formalizing word meaning itself. This relates to the problem of how much information is contained in the word or language itself and how much is inference on the part of the child (section 5.1.1d). When a child applies a word incorrectly, a distinction may be made between these two factors. However, from the viewpoint of "grammar", the meaning stems from the use of the word in the language. Therefore, separating the meaning of the word from its use in the language, leads us only to a restricted use of the word.

We cannot encapsulate within a theory the way in which a child learns every word in the language. Perhaps we need rather to accept that language does not lend itself to such specification and that, at best,

we can offer a method for analysis, the types of questions to be asked, what to look for and how to proceed, allowing language use (word meaning) to speak for itself. As Wittgenstein states:

...my thoughts were soon crippled if I tried to force them on in any single direction against their natural inclination.
- And this was, of course, connected with the very nature of the investigation. For this compels us to travel over a wide field of thought criss-cross in every direction... (ibid, Preface, p.vi).

A schematic model summarizing the present approach to word meaning including its development, possible innateness factors and a method of assessment, follows. This concludes the present chapter.

5.4 Model of the development of non-ostensive word meaning in primary school children : This model summarizes the principles or major tenets of the present approach and outlines the method of assessment and developmental variation.

"Grammar" and non-ostensive word meaning in primary school children

Principles

- Meaning is the primary focus
- Sense alters according to context
- Definitions reveal only a part of the word's meaning
- Non-ostensive words have fuzzy boundaries
- 'Vocabulary' must account for changes in development of word meaning with age
- Word meaning, by its very nature, makes formalization difficult
- Constraints on word use: a word can co-occur with certain select words in the language only.

Method of Assessment

Metalinguistic questions

Standard probe questions
Judgements

Words must be analysed in the context of their use(s)

Analysis of each word in a variety of tasks and in different linguistic contexts

Development

Ability to generalize in specific ways for different words/word combinations continues through development.

Strategies differ with age
Trends in content occur at different age levels

Changes in word meaning with age

Regression on certain tasks at +/- 8 years

Word applied according to its physical object sense or in relation to a physical object
-> non- physical entities

Ostensive definition limited in explaining non-ostensive word meaning

"Language games" explain development from child to adult

Sophisticated confusion part of the end-state

CHAPTER 6 : CONCLUSIONS

In this chapter, a summary of the major findings is presented. Thereafter, educational and clinical implications are briefly discussed followed by suggestions for future research.

6.1 Summary of major findings

The present findings have major theoretical and clinical implications for adopting an alternate approach to the study of word meaning.

This study elucidate the value of metalinguistically-phrased questions and judgements in the study of word meaning in 6-12 years olds. This method highlighted differences which spontaneous production and existing methods of eliciting comprehension have failed to capture at this developmental period. This method also afforded a means of assessing non-ostensive words which are difficult to investigate formally because they cannot be suitably represented in a visual display. The present findings revealed the limitations in previous vocabulary studies and suggested a reconsideration of our use of the term 'vocabulary'.

A developmental progression was found in the strategies employed by the subjects to answer the metalinguistically-phrased questions. Furthermore, children of different ages (both within and between groups) assigned different meanings to the words as these words occurred in diverse contexts. The answers also varied depending on the word: certain words revealed developmental trends in specific contexts (same in same pain); others gave rise to uniformity across age groups (**pretend** as assessed in a variety of linguistic contexts); whereas others resulted in variability across subjects (the fuzzy boundary tasks for all the words).

Trends rather than definite stages were noted in the development of word meaning during this period. It is of importance that a reverse trend was found, predominantly at 8 years of age, on a variety of tasks for all the words. Further investigations may provide a suitable explanation. However, it is clear that a lack of smooth development must be taken into account in our description of child

language. Similarly, the 'sophisticated confusion' noted in the adults' performance alters our perspective on what constitutes an end-goal in the development of word meaning. Apparent confusion occurs naturally as part of the developmental process.

The present theoretical framework questioned a number of approaches to word meaning: those which favour a core theory of meaning; referential and ideational philosophical approaches to word meaning; approaches which advocate ostensive definition as primary in language learning; and those psycholinguistic approaches which regard words as labels for previously-acquired concepts. The present orientation was formulated on the basis of a critical analysis of these approaches. This study did not aim to deal with these issues directly but the findings add support to these criticisms.

The role of ostensive definition was questioned as a primary factor in the learning of non-ostensive words. This suggests either that its role has been overplayed in the learning of substantive words or that substantive and non-ostensive words are subject to different learning processes. The former option was favoured by the present research drawing on "language games", the different discourse types in which a word may be used, to explain the learning of all words. It was found, however, that the senses of the words assessed were initially those relating to the more 'concrete' application of the word. This may suggest that certain processes operate in the learning of substantive words as well as of certain senses of non-ostensive words. Ostensive definition appears to contribute to the learning of all words as does the linguistic context in which the word is used.

The present findings highlighted the usefulness of the term "grammar". This term led to an investigation of aspects of word meaning which had not been taken into account in other approaches concerned with co-occurrences constraints. The "grammar of words involves co-occurrence preferences over and above those encompassed by terms such as 'selectional restrictions' and 'collocational constraints'. It takes account not only of idiomatic expressions or of co-occurrence tendencies, but also of the manner in which the meaning of the word is altered according to its linguistic context. Developmentally, the notion of "grammar" led to an evaluation of the extent to which

children of different ages are able to account for linguistic context in making judgements about a word's meaning.

Theoretically, it was posited that a word derives its meaning from its use in a variety of contexts. It was concluded from the findings that the term "grammar" is a necessary one in our explication of the development of word meaning. Linguistic context affects our use and understanding of a word, thereby contributing to the meaning of the word. Definitions were incomplete in elucidating the meanings of the non-ostensive words assessed and it was argued that definitions discount the importance of linguistic context in word meaning. Fuzziness of words seems to afford a certain flexibility so that the word can alter its sense depending upon its linguistic environment.

Developmental differences were found in children's ability to account for the alterations in sense that a word undergoes in different linguistic contexts. This suggests that the child has to learn the numerous senses of every word in the language in a diversity of linguistic contexts. In addition, he must learn the specific set of words with which each word can co-occur and the shifts in sense which the word undergoes in each linguistic environment.

It was suggested that the child has an innate ability to generalize while learning language. However, as was emphasized, an elegant theory of word meaning may be implausible due to the very nature of word meaning and the "grammar" of words. Furthermore, it was not the aim of this study to formulate a theory of word meaning. Rather, a model of development during the 6-12 year period was proposed and a method of analyzing children's language abilities was offered. The application of this model to applied fields is discussed in the sections which follow.

6.2 Clinical and educational implications

As the present study was inspired, in part, by clinical observations of children with language difficulties, it seems only fitting to offer suggestions to assist workers in applied fields. These will be presented briefly.

6.2.1 A method of assessment is suggested rather than a formal test. Metalinguistically-phrased questions requiring justifications for answers and examining a child's understanding of a word in a variety of different contexts is advocated. We need to transcribe language samples for preschool children and for aphasic adults. From such samples, we will be able to examine the specific types of "grammar" errors that occur in different linguistic contexts. As an example, do aphasic adults make certain mistakes when using **same** with **pain** but not with **ball** and what aspects of the "grammar" of each word are violated?

6.2.2 Language testing

6.2.2(a) We need to clarify our use of the term '**vocabulary**' and to alter our methods of testing children for word meaning. The present findings suggest that we need to grade the child's understanding of a particular word in a variety of tasks which use the word in diverse linguistic contexts. A quantitative measure will tell us little about the child's vocabulary abilities relative to others in his age group. The type of answer he provides and his level of understanding of the word is an important diagnostic factor. Answers will reflect whether the child is responding comparably to a younger child, an older child, or to his peers. His responses on a variety of tasks are important to take into account as is his individual use of certain words. Vocabulary tests to date either assume a correct versus incorrect response, or at best, allow for a partially correct response. However, further analysis is required within these responses: children from 6-12 years may be presented with the same (equivalent) set of questions but the types of responses they offer will reveal whether they are functioning within their age level or not.

6.2.2(b) Language tests may also be extended by including metalinguistically-phrased questions. There is a particular dearth of tests for children beyond the preschool period and metalinguistically-phrased questions may offer an avenue for augmenting our testing skills. Tests to date generally evaluate language comprehension and production.

6.2.2(c) Metalinguistic tasks are presented predominantly verbally. However, language tests have attempted to minimize language use both

in administration of test items and in the response required (particularly when working with children who present with language difficulties). The present research suggests that, in this way, we tend to lose useful information about the child's performance and ability, for example, the extent to which he comprehends metalinguistic questions and the level of explanation he offers to substantiate his answers. At a preschool level, metalinguistic tasks would be inappropriate but for the primary school child, they may be particularly enlightening.

6.2.2(d) In testing preschool children, we need to take into account not only semantic factors (that is, the use of the word as agent, object, etc.) and pragmatic factors (that is, the use of the word to gain attention, make a request, and so on) as has been emphasized by speech/language therapists (for example, Prutting, 1979) but also, the "grammar" of the words that the child uses (that is, the child's use of the word in a diversity of linguistic contexts). The pragmatic approaches are concerned with how the child uses language to communicate. The present approach emphasizes the use of a word in particular linguistic contexts within communicative situations.

6.2.2(e) In his study of children's comprehension of **more** and **less** Palermo (1973) points out that findings of studies may have differed due to the differences between the tasks used in assessment. The present researcher argues that these tasks also demand a different "grammar" of the words being assessed and that it is the alterations in word meaning according to the context, which may be the crucial intervening variable.

6.2.2(f) The present metalinguistically-phrased questions may be too difficult for preschool children. We need to ascertain at what age level they are unable to answer these questions at all. What may be more appropriate is questioning the child indirectly on the basis of his spontaneous errors of "grammar".

6.2.2(g) We need to determine whether language-impaired children present with a greater number of errors of "grammar" than do normal preschool children and whether their errors are of the same type or not.

It is of interest that some children who present with what is regarded as 'cluttering' behaviour, that is, very rapid speech, atonal in quality, have been noted by the present researcher to display errors of "grammar" both in the preschool years and later at school level. These errors are also transferred from verbal to written language. This requires detailed study but may throw light on what frequently appears to be a difficulty with generalizing. The child has to be taught the different or numerous uses of a word in contrast to a normal child who is able to apply the word appropriately in different contexts. Children with language impairments are frequently unable to select out similar features and to ignore differences in applying words. Wiig and Semel (1980) have reported on learning disabled children who fail to recognize ambiguity and who focus on one meaning of a word only. This requires further assessment from the viewpoint of "grammar" namely, in what contexts do these children fail?

6.2.2(h) When taking a language sample, it is not sufficient to note the extralinguistic context in which the child produces an utterance. We need to note down, as well, the linguistic context in which the word is produced. As an example, in what linguistic contexts does the child use the word **same** (for example **ball/dress**); in what "language games" does he use the word, that is, is he able to use and understand the word **pain** in a "language game" about his own pain; about others' pain; about pretending versus really being in pain; and what is his intention in each particular context? Are there any spontaneous "grammatical" errors in his uses of the word? And, if so, in what linguistic contexts do these errors occur?

6.2.3 Teaching vocabulary

When teaching vocabulary to children with language and learning problems, it is not sufficient to simply have a theme around which our therapy is structured. We have to design the presentation of each word, that is, decide on the linguistic contexts in which each word should be presented. Investigation is required to determine whether a language-impaired child will ultimately be able to generalize from a number of direct uses of the word in different linguistic contexts.

This may apply equally to the word finding difficulties of aphasic adults and to the difficulties they experience when generalizing

spontaneously from one context to another. Again, further research is required in this regard. Metalinguistically-phrased questions may extend our understanding of the language abilities of adults who present with different types of aphasia.

Principles that can guide the teaching of verbal language to normal children will hold equally ^{for} hearing-impaired children use sign language. It is speculated that hearing-impaired children taught by oral-aural methods may be 'rigid' in their language use because they are not exposed to sufficient "language games". They are, therefore, unable to take account of the "grammar" of words in different linguistic contexts.

6.2.4 Language and reading

The present findings have implications for the teaching of reading using a language-experience approach. The present findings suggest that it would be important to improve the child's knowledge and use of words in a variety of linguistic contexts. Reading materials for the early grades are designed to increase vocabulary and to establish a comprehensive grasp of the meanings and uses of words. These reading materials may be enhanced by a "grammar" emphasis with language abilities stimulated through the use of words in different "language games".

6.2.5 Implications for Second Language Learners

Wittgenstein (cited by Zabeeh, 1971) points out:

Whether a word of the language of our tribe is rightly translated into a word of the English language depends upon the role this word plays in the whole life of the tribe, the occasions on which it is used, the expressions of emotion by which it is generally accompanied, the idea which it generally awakens or which promote its saying, etc., It follows that if a tribe is quite unlike the behaviour of a tribe of the translator, he could not understand their language.

Findings from the present study would favour teaching a second language within simulated communication situations using tasks involving language although not directly language-based. Everyday

words, for example, **do**, **feel**, **see** and **where** (to draw on words from the present study), need to be included in different "language games" and linguistic contexts. It has to be gauged whether and in what way the use of each word in the first language differs from that of the second language. As an example, one language may use the word **pain** for 'emotional pain' whereas another language may have a specific word for 'emotional pain'.

The principles of learning a second language are equivalent for adults and children. However, it must be kept in mind that adults are more advanced cognitively and that linguistically they are aware of ambiguity, are more subject to sophisticated confusion, and so on.

In all the language programmes mentioned above, syntax is necessarily included indirectly, as are semantics and pragmatics. Children who transfer their reading skills from one language to another (for example, transition from vernacular to English) may require detailed intervention at the level of "grammar" of words in the second language.

The present findings offer a model which may be suitable for use by both linguists and psycholinguists. However, within this framework, additional research is required from both a theoretical and a clinical perspective. In the final section, suggestions for future research are proposed in concluding this study.

6.3 Suggestions for future research

The model proposed to assess and describe the development of word meaning in 6-12 year olds, offers a novel framework for future research from both theoretical and clinical perspectives. A few suggestions for future research are presented below.

This research requires verification on large samples of children and adults. Longitudinal data would be valuable so as to control the factor of individual variation across subjects.

The relationship between the "grammar" of words and cognitive abilities may yield useful information. As was mentioned earlier (section 5.3.6) performance on conservation tasks and the child's

understanding of words such as **more**, **less**, **same** (for example, Sinclair, 1975, 1976a, 1976b) may be further highlighted by investigating the child's understanding of these words in different linguistic contexts. The latter may reveal why some children perform better than their peers on certain conservation tasks and why particular conservation tasks are learned earlier than others. The child's early use of the word may occur in a linguistic context which has specific bearing on the particular conservation task in question. These findings may also add to those which have attempted to relate metalinguistic awareness and cognitive abilities (for example, Hakes, Evans and Tunmer, 1980).

The relationship between the "grammar" of words and intelligence level may also be enlightening. Vocabulary has been regarded as one of the best predictors of overall IQ score (for example, Matarazzo, 1972; Sternberg, 1984). It measures, indirectly, children's ability to acquire information in context. Sternberg and Powell (1983) found that the quality of children's definitions of unknown words embedded in paragraphs, correlated highly with overall verbal intelligence, reading comprehension and vocabulary test scores.

As was mentioned (chapter 3), researchers (for example, Gardner, 1984; Sternberg, *ibid*) have questioned the value of IQ tests as a measure of intelligence. Furthermore, verbal IQ scores pertain to a broad measure of language (for example, by means of associations) which differs from an investigation of language according to the "grammar" of words.

As was discussed (chapter 3), intelligence level was randomized in the present study. Language level could not be correlated with intelligence level for any particular child because no single measure of intelligence was available for all groups of subjects. However, the present study may offer a useful means of evaluating intelligence indirectly via the understanding and use of word meaning. It was noted that the 12 year old gifted child, unlike most of his peers, displayed sophisticated confusion comparable to adults.

It would be of interest to assess preschool children's ability to take account of the "grammar" of words. This would enable us to determine whether there is a link between the acquisition of word meaning and

its development (beyond the acquisition period). It is suggested that we ask metalinguistic questions of preschool children from 6 years downwards. At a certain period of development, such questions will not be answered at all or will give rise to bizarre answers. However, the commonalities in responses will reveal interesting errors of "grammar".

On the basis of the present findings and from the pilot study conducted with a small group of preschool children, it is hypothesized that 4-5 year olds will be able to answer certain metalinguistic questions but that they will display "grammar" errors in their understanding of the words being assessed. Words such as *do*, *feel* and *see*, used frequently by preschool children, could be assessed. The important question is what children understand by these words, that is, the way in which their understanding differs from that of older children and adults.

It would be of interest to investigate the "grammar" of words in relation to other language components such as syntax. It would also be valuable to study in greater depth, processes such as that of generalizing, which underlie our use of words, sounds and syntactical forms in different linguistic contexts. We need to determine whether these processes differ for each component of language and, from another vantage point, we need to establish how the child is able to account selectively for similarities and differences in his environment and in his use of language. Work with language-impaired children and with aphasic adults may enlighten us in this regard.

In line with Carey's 'chromium study' (1983), it would be enlightening to teach a 'nonsense' word (for example, *zing*) which has no referent in the external world in order to map out the acquisition process for non-ostensive words. One child could be presented with the non-ostensive word in different linguistic contexts and "language games" in contrast to another child who receives no direct teaching of the word and a third child who receives an ostensive definition emphasis. It would be of interest to determine the variety and number of linguistic contexts in which the child requires specific teaching prior to his being able to extend the word spontaneously to novel contexts.

An investigation of metaphoric language from the viewpoint of the "grammar" of words may determine whether "grammar" provides a link between literal and figurative language. The difficulties we have in delimiting the senses of a word suggest that metaphoric uses may be additional senses of a word extending along a continuum from literal to figurative uses. In his figurative use of a word, the speaker has to disregard literal sense and recognize that the word must be applied as part of a unit with no internal grammar as well as acknowledging that he is breaking rules. If this is the case, then it remains to be determined whether metaphoric use as an additional sense of the word (its "grammar") is a property of the language or is rather a one-off occasion. As G. Matthews (1980, p.93) states :

..."strong" has an incredibly complex array of meanings and applications. Among the many things that may correctly be said to be strong are oxen, weight lifters, colors, tea, arguments, customs, convictions, markets in certain commodities, irregular verbs, and ocean tides...

...Saying just which uses are literal and which are figurative is (also) difficult. Showing in any helpful way how the allegedly figurative uses are related to the allegedly literal ones may not even be possible.

The literal-figurative distinction, of which perhaps nobody can give an entirely clear and coherent account, is one we learn to accept at an early age. Once we do accept it, we lose much of our natural curiosity about the wonderfully intricate ways in which the meanings of a word are related to each other.

Preschool children display errors of "grammar" in their spontaneous language production. A study of children's understanding of jokes from the point of view of the "grammar" of words may be of interest in light of previous studies (for example, Horgan 1981). As Wittgenstein (1953, pt. 111) remarks :

The problems arising through a misinterpretation of our forms of language have the character of depth. They are deep disquietudes; their roots are as deep in us as the forms of our language and their significance is as great as the importance of our language. Let us ask ourselves: why do we feel a grammatical joke to be deep...

In her review of word meaning in the 'State of the Art' (1982), Carey criticizes the semantic feature theory and concludes that :

We are left with no theory of lexical development to replace the semantic feature hypothesis (p.374).

It is felt that the present study offers a foundation for building a theory of word meaning. This study addressed certain of Carey's five potential research questions, namely:

a) What use does the child make of a linguistic context in which he hears a new word, on learning a word's meaning? "Grammar" deals directly with the issue of linguistic context and its effect on other words in the language. The learning process was not explained because the present study dealt with word meaning beyond the acquisition period.

b) Carey (ibid) mentions that it is difficult to find evidence for incorrect lexical entries but that these are important to take into account. The limitations of lexical theories of word meaning were discussed. However, "grammar" errors were noted on metalinguistic tasks and it was emphasized that we need to penetrate beyond the child's correct spontaneous productions in order to obtain a clearer picture of his language abilities. Errors were noted in this regard.

c) Carey questions whether lexical acquisition is the same for all kinds of words. A lexical approach was not applied in this study but "language games" and "family resemblances" seem to hold for all words although differences necessarily occur within "language games". The non-ostensive words studied were applied initially in more concrete senses, for example, **same pain** was used to suggest that the pains were in the same place (versus of the same type); **same book** was applied to mean two books of the same colour and size rather than having equivalent content.

d) Carey questions whether there are constraints on all human concepts which reduce the classes of meanings that the child may map onto a new word. This question was not answered directly in the present study but it was touched upon in discussing flexibility within constraints in the development of word meaning. Further research is required to determine whether generalizing ability such as the ability

to focus on similarities and to ignore differences selectively in different environments pertains to both language and to other behaviours or whether it is discrete in each case.

e) Finally, Carey questions whether a theory of semantic development is able to be constrained by systematic differences between child and adult concepts. From the present findings, it is postulated that there is continuity in development from child to adult language with metalinguistic awareness providing the link. However, systematic differences were found in strategies employed, differences which have some bearing on the subject's understanding and use of the word at any particular developmental stage.

Additional research is required to confirm these findings. However, it is hoped that this study provides an incentive for further investigations into the area of word meaning from the perspective of "grammar".

The words of Wittgenstein provide a suitable conclusion. He states that :

Language is a labyrinth of paths.
You approach from one side and know
your way about; you approach the
same place from another side and no
longer know your way about
(Wittgenstein, *ibid*, pt.203).

The same or almost the same points
were always being approached afresh
from different directions...
(Wittgenstein, *ibid*, preface p.vi)

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APPENDIX A

INSTRUCTIONS

6 and 8 year olds

You're going to help me with my work but it's got nothing to do with your school work. I want to find out some things about children's language so, we're going to play some games in which I'm going to ask you to do a whole lot of things. I'm not trying to find out how clever you are. There's no right or wrong answer. You must tell me if you don't know the answer or if you don't understand what I want you to do. It doesn't help me if you guess. I'm asking older children these questions as well, so some of them will be hard.

10 and 12 year olds

I'm trying to find out some things about children's language and I want you to help me. This has got nothing to do with school work and I'm not testing you. I'm going to ask you to do a whole lot of different things. There's no right or wrong answer. It doesn't help me if you guess. Some of these questions may seem easy but I'm asking younger children as well.

Adults

I'm doing a study on children's language. I'm going to ask you a series of questions - exactly those questions which I've asked 6-12 year olds so some you will find very simple. Please try and be as concise as you can in your answers.

APPENDIX B

In Appendices B - H, Q(Question) refers to the number of the task and was selected because the majority of the tasks are in question form. The number of the task is based on the order of presentation of tasks over the four testing sessions. For the analysis, the tasks are grouped differently according to type but the original number is retained.

List of pretest tasks in order of presentation

- Q1 What is a word?
Probe: What are words for?
- Q1a What is a sentence?
- Q1b What is a language?
- Q2 What is a name?
Probe: What are names for?
- Q3 Can a word be clever?
Probe: Give me an example of a clever word
or Give me a clever word you know (6 years)
- Q4 Is **dog** a word?
- Q5 Can you give me 1 word you know? (6 years only)
- Q6 Is a book made of paper?
- Q7 Is **pain** a word?
- Q8 Is **dog** a name?
- Q9 Is **John** a name?
- Q10 Is the word **book** made of paper?
- Q11 Can a word be furry?
- Q12 Has the name **John** got 2 legs?
or: For the 6 year olds, child's own name fills the
 space.

In Appendices C, D and E which follow, all drawings are by Charlene Mendelson. The original drawings were all in colour.

APPENDIX C

Tasks for the words same, similar and different

Spontaneous Sentences

- Q13 I want you to make up 3 sentences with the word **same**.
Now make up 3 sentences with the word **similar**
Now make up 3 sentences with the word **different**
or: I want you to make up a little story with **same** etc.
(6 years)

Definition tasks

- Q14 When I say things are the same, what do I mean?
Q18 If I say that 2 things are exactly the same, what do I mean?
Q19 What does similar mean?
Q24 What does the word **different** mean?
or: for 6 year olds, the word **word** is replaced by one/more words according to the child's explanation of **word** in the pre-test.

Fuzzy boundary tasks

- Q20 Does **same** mean the same thing as **similar**? Why/Why not?
Q22 Does **same** mean the same thing as **different**? Why/Why not?
Q36 A series of apples varying in degrees of colour, size and bruising: Present 2 apples at a time (numbers 1+2). Are these 2 apples the same or are they similar or different? Why? Present 1+3. And these 2? (1+4) and these 2? And so on.

Tasks in a diversity of linguistic contexts

Tasks which occur in a broader situational context are marked with a cross +.

Same dress/shirt

- Q21 When I say that I have the same dress/shirt as you, what do I mean?
Probe: Give example or (for 6 years), what will the dress/dresses look like?

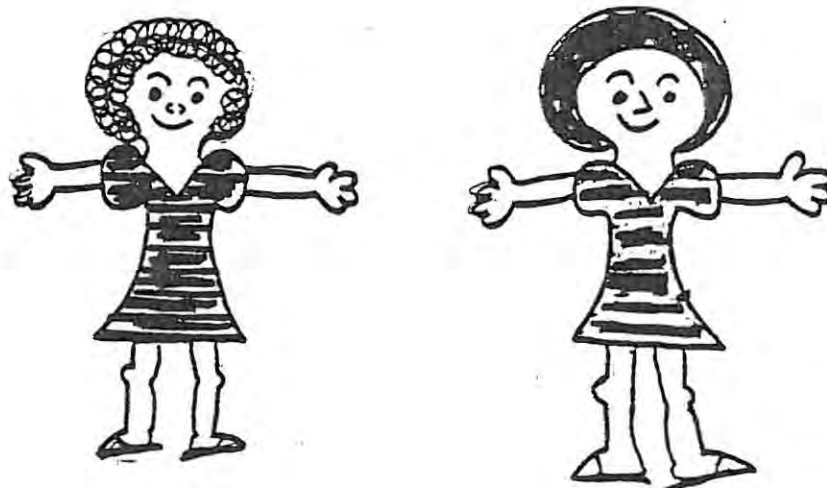
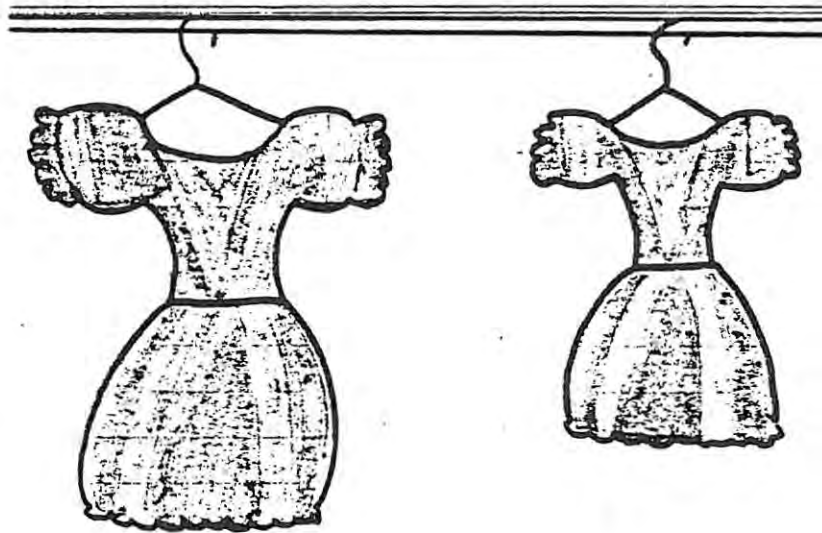
Q32a-e (5 pictures presented)

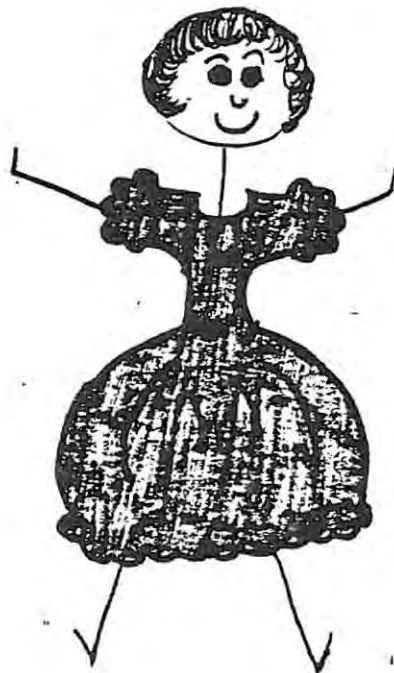
Present pictures (a) to (e) one at a time:

Can I say about this picture "Jane has the same dress as Mary?"

Probe: Does it matter that the sizes/colours/sleeves are different?

For (e) Probe: Could there be 2 dresses?





different dress/shirt

Q16 When I say that I have a different dress/shirt from you, what do I mean?

Probe: Give an example or (for 6 years) "What will the dress/dresses look like?"

same apple

Q17 If I say that we're eating the same apple, what do I mean?

Q35 Present pictures of 2 apple trees with 6 small apples: Here are 2 apple trees. This tree has some apples on it (2) and there are some apples lying on the ground (4). I want you to put the same apples on this tree as are on this tree.

Probe: When I said that, could I have taken 2 apples from the tree because these are the very apples or couldn't I have done that? Why/Why not?

If subject takes apples from the tree, probe the reverse

same chair

Q31 4 pictures of chairs and apples of different colour or size (apples) and of different type (chairs) are presented. If John says to Mary:

- a) "We're sitting on the same chair", which picture shows that?
- b) "We're sitting on the same chairs", which picture shows that?
- d) "We're eating the same apples", which picture shows that?
- e) "We're eating the same apple", which picture shows that?

same seat

Q26⁺ Here's a picture of a bioscope with empty seats. Here's John and here's Mary. John and Mary are going to bioscope. They can sit anywhere they like.

John says: "I want to sit in the front row"

Mary says: "Yes, and I want to sit in the same seat as you".

If John sits here (shows on picture), where will Mary sit?

Remember, she tells John: "I want to sit in the same seat as you".

Probe: Why did you put them both there?/Why did you put them there?

(For 8, 10, 12 years and Adults): When she said "I want to sit in the same seat as you", could she have meant that she wants to sit in the seat next to him (shows on picture) because both the seats look the same?

Or wouldn't she have meant that? Why not?



same ball

Q33 (Present the 2 pictures)

This is Jane and this is Mary. Which picture shows:
Jane has the same ball as Mary or are none of them OK?
Why/Why not?

For the 10 and 12 year olds only:

Probe: But you said there was 1 seat (Q26), how come there
are 2 balls (or vice versa). Do there have to be 2
balls when I say that?



same book

Q28+ John and Mary are walking to school. Each of them is
carrying a book. John's book is big and Mary's book
is smaller.

John says: "We have the same books"

Mary says: "Do we? Mine is so small and yours is so big"

Why did John say that their books are the same?



Q29+ John and mary are walking to school. Each of them is carrying a big book.

John says: "Your book is the same as mine"

Mary says: "Oh no. it's not!"

Why does Mary say that their books are not the same?

(Picture as for Q28 but John and Mary are carrying books of the same size and overt appearance).

same leaf +

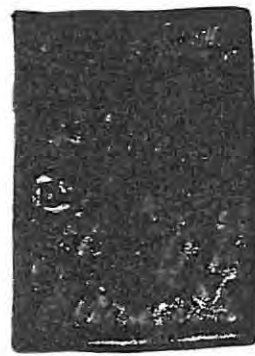
Q27a There was a boy named Johnny who had a big tree outside his bedroom window. The tree had a few leaves on it. He used to love to watch the birds on the tree. Then it started to get cold and the leaves became a reddish colour and then brown. The bird's didn't come anymore. They had gone away for the winter. One day the boy woke up and found only two leaves left on his tree. He ran outside and saw some leaves lying on the ground. One of them had a hole in it.

Are these leaves on the ground the same as the ones the boy loved to look at on his tree, or are they similar or different? Why/Why not?

Depending on the subject's answer: if answered "same"

Probe: But, they don't look the same, these are green and these are brown, and this one's got a hole in it (shows on picture) or if answered "not the same"

Probe : But, where did these leaves come from? (From this tree or another tree?)





same tadpole/frog

Q27b⁺ Mary goes down to the pond with her mother and she sees some tadpoles in the pond. When she goes back a month later, she sees a frog on the edge of the pond. Could one of these tadpoles be the same as this frog or not? Why/Why not? If answered "same"

Probe: But, they don't look the same, these are brown and long and these are green (shows on picture). If answered "not the same"

Probe: But, surely they must be the same if the tadpole grows into a frog?

(6 years) - Pretest: "What is a tadpole?"



same ship⁺

Q30 There was a ship that went out to sea and it crashed against the rocks and it sank. The people hauled (took) it out and started to rebuild (remake) it piece by piece (bit by bit). Some of the pieces were badly damaged so they used some of the old pieces and they used some new pieces (6 and 8 years - bracketed portions). Once they had rebuilt it, was this the same ship as the one that went out to sea in the first place, or was it similar or different? Why?

If child answers "same"

Probe: Even if they used some new pieces?

And if it looked different afterwards?

If child answers "not the same"

Probe: Even if it's the very one that went out to sea?

And if it looked the same afterwards?

This task is based on G. Matthews (1984). However, the probes are oriented linguistically not philosophically.

same pain

Q15 If I say that I have the same pain as you, what do I mean?

Probe: Give an example or (for 6 years) What will the pain/pains be like?

Do they have to be in the same place (or not) to be the same?

Do they have to be caused by the same thing?

or (6 years) Do they have to be because of the same thing?

Q45 Can you have the same pain as me? When would that happen?

Probe: Do they have to be in the same place to be the same?

If I've got a pain up here in my arm (shows) and you've got a pain down here in your arm (shows), will those be the same pain(s) or not? Why/Why not?

Q47 When you fall, do you always have the same pain, or is it sometimes different? What makes it different?

Q48 In this picture, a boy is hit by a man and in this picture, a boy has toothache. Is the pain of this boy the same as the pain of this boy or is it similar or different? Why?



Q49 In this picture, a boy has toothache and in this picture, a girl has toothache. Is the pain of the girl the same as the pain of the boy, or is it similar or different? Why? If say "same"

Probe: And, if his is in a big tooth and hers is in a little tooth, is it still the same?



Q60+ John is playing with some bricks and a brick falls on his foot.

John says: "Ouch! my foot! my foot!"

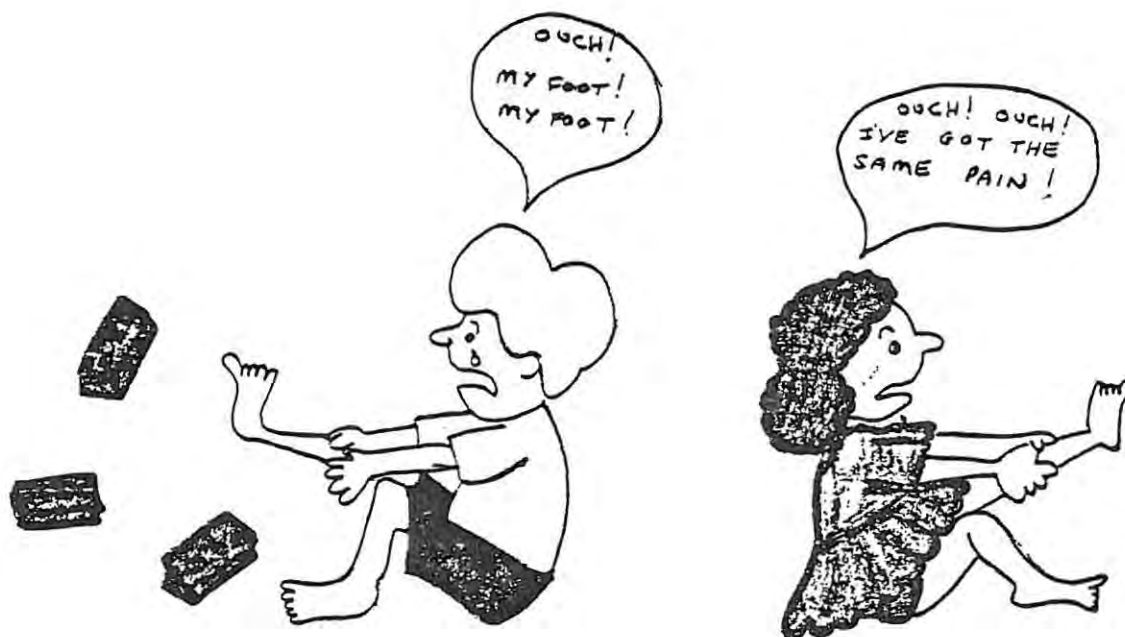
Janet says: "Ouch, ouch! I've got the same pain"

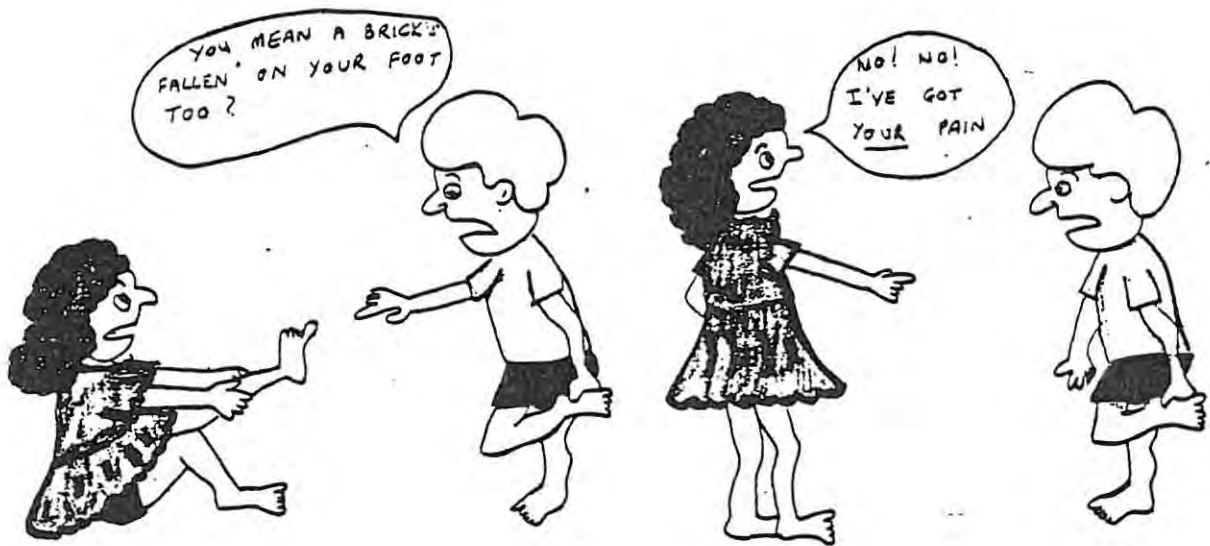
John says: "You mean a brick's fallen on your foot too?"

Janet says "No, no! I've got your pain".

Does that story sound OK or not? Why/Why not?

When Janet says "I've got the same pain" is that OK? What does she mean? And when she says "I've got your pain"? Must a brick have fallen on her foot too, for her to say that?





Q76 -Can you have my pain? Why not?

Similar pain

Q25 If I say that I have a similar pain to you, what do I mean?
Probe: Give example or (for 6 years), what will the pain/pains be like?

Same anger

Q41 Can you have my anger?

Same dream

Q159 Can your dreams be the same as my dreams? Why/Why not?

APPENDIX D

Tasks for the words pretend, know, believe and think.

Spontaneous Sentences

- Q88 I want you to make up 3 sentences with the word **pretend**
Q89 Now make up 3 sentences with the word **know**
Q91 Now make up 3 sentences with the word **believe**
Q92 Make up 3 sentences with the word **think**

Definition tasks

- Q164 What does it mean to **pretend**?
Q132 What does it mean to **believe**?
Q149 What is a **thought**?

Fuzzy boundary tasks

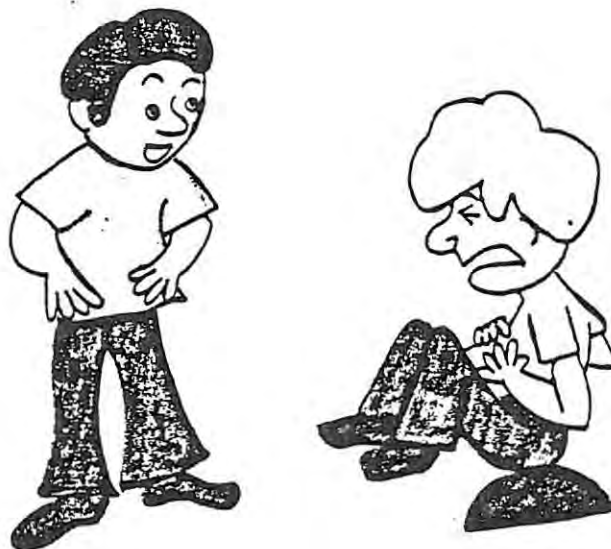
- Q140 Is to **lie** about something the same as to **pretend** about something or is it similar or different?
Q136 Is to **know** something the same as to **think** something?
Q153 Is to **believe** something the same as to **think** something or are they similar or different?

Tasks in a diversity of linguistic contexts

Tasks which occur in a broader situational context are marked with a cross+.

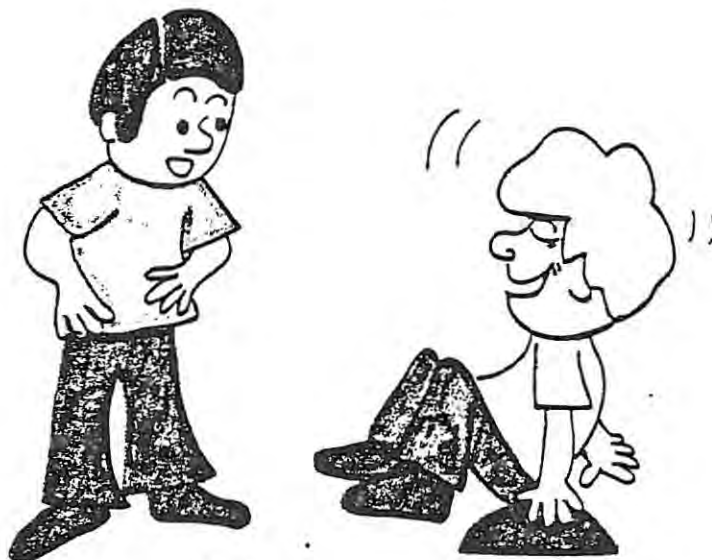
- Q175 I want you to tell (or show) me how you would **pretend to walk**.
If subject says: "Stand on one spot and move your feet up and down"
Probe: But part of walking is getting from one place to another, so are you pretending to walk, or are you pretending to do something else?
If subject says eg. "You walk funnily..."
Probe: But, are you pretending to walk or are you really walking? Then how would you pretend to walk?

- Q176 How would you pretend to sing?
If subject says: "You open your mouth and make no sound",
Probe: But, when you sing you have to make a sound, so would you be pretending to sing then or to do something else? And how would we know if you were pretending to sing or pretending to talk?
If subject says eg: "You sing but not the same way as usual"
Probe: But, then are you pretending to sing or are you really singing?
- Q183 How would you pretend to write?
Probes as for Q175 and Q176 modified for pretend to write
- Q179 How would you pretend to laugh?
Probes as for Q175 and Q176 modified for pretend to laugh
- Q177 How would you pretend to think?
Probes as for Q175 and Q176 modified for pretend to think
- Q180 How would you pretend to dream?
Probes as for Q175 and Q176 modified for pretend to dream
- Q181 How would you pretend to be angry?
Probes as for Q175 and Q176 modified for pretend to be angry
- Q178 How would you pretend to be in pain?
Probes as for Q175 and Q176 modified for pretend to be in pain
- Q80a,b Present picture 1:



a) Johnny falls down and he's sitting on the ground like this. Bobby (his friend) comes up to him. Is Johnny in pain here or not? How do you know? What does Bobby do?

b) Now look what happens (present picture 2). Is Johnny in pain here or not? How do you know? What does Bobby do?



Q100 The child is presented with the following picture and asked: Could he be in pain/not? How do you know?



Probe: (8, 10, 12 years) - Could he be pretending he's not in pain? Why would he do that?

- Q182 How would you **pretend to be yourself**?
Probe: Can you pretend to be yourself?
- Q166 If John **pretends he's sick**, is he really sick/not?
Q167 If John **knows he's sick**, is he really sick/not?
Q168 If John **thinks he's sick**, is he really sick/not?
Q169 If John **believes he's sick**, is he really sick/not?

Pretend to fly

- Q201 John is standing on the edge of a high mountain and he **thinks he can fly**. Will he try and fly (jump) over the mountain or not? Why/Why not?
Probe for Q201-Q204: Will he kill himself or not?
- Q202 John **knows he can fly**. Will he try and fly (jump) over the mountain then? Why/Why not?
- Q203 If John **pretends he can fly**, will he try and fly (jump) over the mountain? Why/Why not?
- Q204 If John **believes he can fly**, will he try and fly (jump) over the mountain? Why/Why not?
- Q205 Out of all of these (Q201-Q204) which one is he more sure to jump - if he **thinks** - **knows** - **pretends** - or **believes** he can fly? And then, which one comes next? (eg. **think**, **pretend** or **believe**) etc.

Do - pretend (on self)

- Q158 What do you do when you pretend?
Probe: Do you usually smile afterwards/not?
Do you usually tell the other person you were just pretending/not?

Tell-pretend (on someone else)

- Q162 How can you tell when someone else is pretending?
Can you always tell?
- Q72 How can you tell when someone else is in pain?
Probe: How do you know they're not just pretending?
Are there times when you're not sure?

APPENDIX E

Tasks for the words pain, ache and sore. Tasks for other words are included where they add to the pain tasks.

Spontaneous Sentences

- Q37 I want you to make up 3 sentences (6 years: a little story) with the word **pain**
Now make up 3 sentences with the word **ache**
Now make up 3 sentences with the word **sore**
- Q38 Make up 3 sentences with the word **angry**
Now make up 3 sentences with the word **cross**
- Q87 Make up 3 sentences with the word **thought**
- Q90 Make up 3 sentences with the word **dream**

Definition Tasks

- Q39 What is a pain?
- Q40 What is an ache?
- Q43 What is a sore?

Fuzzy boundary tasks

- Q42 Are a pain and an ache the same or are they similar or different?
- Q44 Is a sore the same as a pain?
- Q52 Are sore and pain the same or similar or different?
- Q53 Can a pain become an ache? Can you start with a pain and then it becomes an ache?
Where child mentions length of time as a factor
Probe: When it goes on for longer, does it change its name?
- Q63 Can an ache become a pain?
Give an example/when would that happen?

Tasks in a diversity of linguistic contexts

Tasks which occur in a broader situational context are marked with a cross +.

Same pain:

Q15, Q45, Q48, Q49, Q60, Q76 as for same tasks, Appendix C

Pretend to be in pain:

Q178, Q80 a & b, Q100, as for pretend tasks, Appendix D

Tell pain:

Q72 as for pretend tasks, Appendix D

Do pain:

Q51 What do you do when you have a pain?

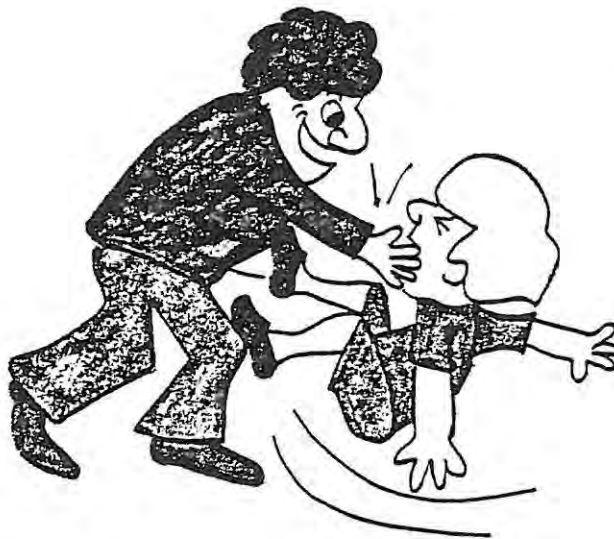
Where pain / ache:

Q75 Where do you feel an ache?

Q54 Where can you have a pain?

Give pain

Q77 (Picture presented):-



John hits Bobby, and then Bobby runs to his mother and says:

"John gave me a pain and now he wants it back again".

"What will his mother say?"

Q65 What does it mean if we say: 'He gives me a pain?'

How do you make the pain go away? Can you give it back to him?

Q85 Bobby is playing outside with his ball. He falls over a stone and starts to cry. He runs to his mother and says: "The stone gave me a pain!" What will his mother say?

Tasks with "grammar" errors

Q125 If I say: "I love a pain"

Probes: Is that OK/not? Can you make it better/improve upon it?

Q127 If I say: "Look! I have a pain on my arm"

Probes: Is that OK/not? Can you make it better/improve upon it?

Q129 If I say: "I've got a pain in my head but I can't feel it"

Probes: Is that OK/not? Can you make it better/improve upon it?

Q61 Is a pain a thing inside you? Can you point to it?

APPENDIX F

Tasks for the words do, feel, see and where

Do

Q51 What do you do when you have a pain?

Q158 What do you do when you pretend?

Probe: Do you usually smile afterwards/not?

Do you usually tell the other person you were just pretending/not?

Q161 What do you do when you think?

Probe: Do you think about everything you're going to do before you do it?

What things would you think about before you do them?

Q31 How do you know when someone else is thinking?

Q46 What do you do when you feel angry?

Feel

Q195 Can you feel your dreams?

Q118 Does this sentence sound OK/not? 'I feel an anger'

See

Q134 Can you see your thoughts?

Q156 Can you see your dreams?

Where

Q62 Where do you feel anger? Always?

Q75 Where can you feel an ache?

Q54 Where can you have a pain?

Q160 Where do you think?

Q147 Where do you dream? Where in your body does it happen?
Always?

APPENDIX G

Set of tasks randomly selected for re-testing

(These are listed according to their order of presentation)

Same

- Q3 Can a word be clever?
- Q14 When I say things are the same, what do I mean?
- Q17 If I say that we're eating the same apple, what do I mean?
- Q19 What does similar mean?
- Q30 Ship story.

Extra Tasks Added:

- a. When do people use the word pain?
- b. When do people use the word ache?

Pain / Anger

- Q42 Are 'a pain' and 'an ache' the same or are they similar or different?
- Q45 Can you have the same pain as me? When would the happen?
- Q56 Can a car be angry? And a dog? And an ant?
- Q72 How can you tell when someone else is in pain?

Thought / Dream / Daydream

- Q137 Can you have more than 1 thought at a time or only one?
- Q139 If you're thinking, can that become a dream?
- Q143 Is daydreaming the same as thinking?
- Q150 What is a dream?

Believe / Think / Pretend / Know

- Q153 Is to believe something the same as to think something or are they similar or different?
- Q164 What does it mean to pretend?
- Q175 I want you to tell (or show) me how you would pretend to walk
- Q181 How would you pretend to be angry?

Extra Tasks Added:

- c. When do people use the word angry?
- d. When do people use the word cross?

Believe / Think / Pretend / Know (contd.)

Q202 John is standing on the edge of a high mountain and he knows he can fly. Will he try/and jump over the mountain or not?

Q204 John is standing on the edge of a high mountain and he believes he can fly. Will he try/and jump over the mountain or not?

APPENDIX H

Examples of incompatible answers for the two test sessions

RETEST 1

RETEST 2

Q45 Can you have the same pain as me?

12 year old

"um - (sigh) - um...(laughs)
oy! sort of, ja - when I've
got a headache in the same
place as you've got a
headache (have to be in the
same place?) yes (same cause?)
no - oy! uh - no! (How do you
know we've got the same pain?)
Well, say I say to you:
'I've got a headache over
here' then you'll say 'ja,
I've also got one over here'
(so, we have to tell each
other?) Yes".

"um - could have the same kind
of pain but couldn't have the
same pain (you say: I've got
the same pain?)
sure - most people do"

Q204 If John believes he can fly, will he try and jump over the
mountain?

12 year old

"ja"
Probe: "and will he get
killed?"
"ja"

"he shouldn't"
Probe: "would he get killed?"
"um - ja"

Q202 If John knows he can fly, will he try and jump over the
mountain?

6 year old

"yes"
Probe: "and will he get
killed?"
"yes"
Probe: "even if he knows?"
"yes"

"yes - because if he knows he
can fly, then he'll fly off
the mountain" (And will he get
killed?) "he won't - 'cos he
knows he can fly"

Q42 Are "a pain" and 'an ache' the same or similar or different?

8 year old

"similar"

"different"

Five answers revealed a change in level of explanation over the two sessions. Examples are:

Q14 If I say that two things are the same, what do I mean?

Gifted 12 year old

"well, they similar and they may - appear to be the same and they may - act the same and...something like that...

they could be (the same), like identical twins; like leaves on trees - if they come from the same tree then they could be - some of the leaves might be exactly the same size and everything"

"uh - that they are - the same in appearance - they look - uh, you know, you wouldn't be able to tell them apart"

Q175 How do you pretend to walk?

6 year old

"um...dunno"

"you can't - 'cos you can only walk"

Different compatible criteria were offered to explain a particular question, for example:

Q181 How would you pretend to be angry?

8 year old

"you could start screaming, you could hit - the wall or you could stamp your feet..."

"um - well you start shouting and you look at the person with hard eyes and the person would know: now she's not really doing it in the same way as when she's really angry with me - you can't actually do it exactly the same 'cos always a laugh would come out"