THE DEVELOPMENT OF DETERMINERS IN YOUNG CHILDREN : WITH SPECIAL REFERENCE TO THE ARTICLES AND DEMONSTRATIVES.

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Few studies have been made of the acquisition of the articles and demonstratives in child language development. Those that do exist appear divided in their approach to the topic. Some studies regard the articles or the demonstratives as contrastive systems, and experimental evidence is presented to support the view that the and a, or this and that, are each acquired as contrastive systems. Recent work, both theoretical and empirical, has examined both the articles and demonstratives as part of a total system of determination. This is termed the functional approach. However, in most psychological studies, the children's competence with the determiners is regarded as a development towards adult usage.

The present study uses a functional framework, and experiments into article production and comprehension, and demonstrative production and comprehension were devised. Three year old children acted as subjects. Although assumptions were made as to the functions of the determiners in adult speech, the analysis concentrated on the children's linguistic and nonlinguistic performances in the tasks.

In the comprehension tasks, nonlinguistic performances were frequently guided by aspects of the task other than the language of the experimenter, and this is discussed in terms of the response biases noted. In the production tasks, the functions of the determiners elicited are considered in relation to the manipulated variables - including the linguistic input and the perceptual array. The findings highlight the importance of considering what children actually do in tasks designed to investigate specific abilities, and how both the linguistic and nonlinguistic performances of children should be studied in order to assess the functions of language.

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Abstract

The determiners, including such words as the articles, the and a, and the demonstratives, this and that, have been studied from many points of view. There are grammatical theories of their derivation and use, philosophical investigations and psychological studies, looking at adult use. However, few studies have considered the acquisition of these small, but important, words in child language development. Those studies that do exist tend to regard the child's acquisition as a progressive approximation to, or attainment of, adult usage. Chapter 1 of the thesis reviews the previous literature in the area in order to place in perspective the present research study.

Chapter 1 is divided into six sections. The first section serves as a short introduction to the determiners and examines briefly some of the approaches to their study. Philosophical and linguistic studies are mentioned in passing. Historically, the definite article the and the demonstrative that are derived from the same word in Old English (poet), while a is derived from the numeral one. However, most psychological studies of determiner acquisition have been derived from the assumption that the definite and indefinite articles are part of one contrastive system. In order to discuss the psychological studies, section 2 examines the grammatical theories, starting with Christophersen (1939) and Jespersen (1949), of the articles and the demonstratives, as contrastive systems of language use. However, a second approach, which is taken up by developmental

psycholinguists, is what is termed the functional approach. This approach is advocated primarily by psycholinguists and philosophers of language, who believe that the articles and demonstratives are linked (as they are historically) into one integrated system of determination. Section 3 therefore considers integrated theories of determiner acquisition, commencing from the work of Lyons (1975, 1977).

It has been established that there are two theoretical approaches to the study of determiner acquisition, the contrastive approach and the integrated functional approach. The rest of Chapter 1 is concerned with empirical approaches, and section 4 examines some psychological studies of article acquisition. The work of Brown (1973), Maratsos (1976) and Warden (1973) represents studies based on the assumed contrast between the and a. The work of Bresson (1974) and Karmiloff-Smith (1976, 1979) represents the functional approach to article acquisition. The contrastive approach tends to regard the child as working towards adult competence with the articles, and thus the young child errs in his use. Brown, Maratsos, and Warden each deal at length with the child's apparent egocentric use of the definite article. The child uses the instead of a, when introducing a referent known to himself, to a listener who does not have the same knowledge. Brown draws on spontaneous speech, and considers mainly the correctness of syntactic forms. Maratsos and Warden consider the meanings of the words and the child's developing grasp of the articles as a semantic system.

Bresson and Karmiloff-Smith, while both working with French-speaking children, consider the articles as part of a total system

of determination. Although Bresson tends to regard the children as erring when they do not possess adult functions of the articles, Karmiloff-Smith, in a very extensive study, looks at what the children produce and understand. She then postulates the functions the determiners have for young children, how the functions are initially established and how they develop and change with an increase in linguistic and cognitive competence. The present research thesis could be viewed as an extension of this approach with English-speaking children.

A similar distinction between the contrastive and functional approaches to determiner acquisition is seen with the demonstratives, and section 5 of Chapter 1 considers the work of Clark (1978). She looks at the acquisition of the demonstratives (and other deictic pairs) in terms of the child learning specific contrasts, e.g. this vs. that as proximal vs. non-proximal spatio-temporal distance. While Karmiloff-Smith also deals with the demonstratives in her functional approach, the work of Wales (1978, 1979) is discussed. Wales, while considering experimentally the acquisition of the contrastive deictic terms, also looks at spontaneous use of the determiners in mother-child interaction. Not only is the speech examined, but also the nonlinguistic gestures that accompany the speech of young children.

The final section of the review chapter summarises the previous research. Also presented are the broad aims of the experiments that are reported in Chapters 2, 3 and 4. The functional approach is taken, with the research being based on the notion that the article system and the demonstrative system are not separate and individually contrastive systems, but are linked via the and that, in their

deictic functions. The experiments aimed to show how production and comprehension of the determiners can be influenced by various contextual factors. Each experiment was designed to allow for maximum flexibility, and all verbal and nonverbal responses were recorded and subjected to analysis. In this way, a clearer indication of precisely what functions of the articles and demonstratives three year old children are competent with, can be gained.

Chapter 2, presenting the article comprehension experiments, commences by outlining the theoretically assumed adult functions of the articles. These functions may not necessarily be the ones on which the three year old child's article system is based. However, the functions are derived from adult-based notions of usage, so it is reasonable to suggest that they will serve as valid assumptions on which to base the experiments. Three experiments were conducted aimed at examining the young child's understanding of assumed contrasts between the functions of the and a. In all but one condition of one experiment, the children did not provide evidence of understanding the theoretically assumed contrasts. Instead, nonlinguistic response bias explanations were put forward of how the children were performing. However it is not known if the response biases arise because the children do not understand the language, or whether such biases (for absolute location, for relative location, depending on the nature of the task) block any potential understanding. Finally, the problem of designing tasks suitable for article comprehension is discussed.

Chapter 3 presents the experiments designed to elicit the articles

(and other determiners, both linguistic and nonlinguistic). Experiments to elicit only the articles (and their assumed contrast) tend to be fairly un-natural (see Maratsos, 1976), and hence flexible task designs were adopted for the present studies. Many forms of determiner use were elicited by these tasks, and these form the basis for Chapter 3. Experiment 4 studied the already well-documented use of the indefinite article for naming. However, a large incidence (about 30%) of article omission was recorded - an incidence which re-occurred throughout the experiments. Experiments 5 to 7 investigated the effects of various manipulations on subsequent article use. These variables included : the naming of the objects prior to subsequent questioning; altering the form of the question posed; the use of hidden vs. visible arrays; and variation of the class composition of the arrays. It was found that there was an interactive effect of these variables on subsequent article use and the functions of these article forms, but that the form of the question posed had the greatest effect. Questions where the verb of action was specified, e.g. "What did X knock over?", led to responses of the type "$^{+}_{-}$ Article + Noun", while questions where the action was not specified, e.g. "What did X do?" led to the responses being of a full sentence where the action was specified by the child. Again both article forms could occur in these sentences, although there was little omission after a Do question. The functions of the and a varied depending on the form of the response provided by the child, itself dependent on the form of the question.

Experiment 8, where the social context was altered, provided similar results to Experiments 5 - 7, except that the class

composition of the array interacted with the social factor. It is concluded that three year old children can use the article forms in different functions, functions which are dependent on variations in the eliciting contexts.

Chapter 4 considers investigations into demonstrative production and comprehension. The contrastive and functional approaches to demonstrative acquisition are considered in detail, and Experiment 9 examines three year olds' production of _this_ and _that_. No previous research has examined production _per se_, and a context where the spatial contrast between the terms was represented by arrays was used. However, the young children, while using _this_ and _that_, did not base their contrast on the relative proximity of the spatial arrays to themselves as speaker. They instead used _this_ when holding an object close to themselves, and _that_ when proffering an object to an adult sitting opposite them. That is, the child as speaker was the centre of his deictic space, but operated only within certain narrow limits. The noncontrastive use of _that_ (which links to the definite article) was also used by the children in this experiment.

The demonstrative comprehension experiments (Experiments 10 and 11) were fairly standard experiments to assess the young child's ability to understand the spatial contrast between _this_ and _that_, in terms of relating _this_ to proximity to the adult or model speaker, and _that_ to further distance from the speaker. Both adults and models served as speakers. Like the article comprehension experiments, the nonlinguistic performances tended to indicate that children selected objects in certain absolute or relative spatial positions, depending on

the nature of the task, and regardless of the demonstrative used in the utterance. Again it is not known whether the terms were not understood, or whether the biases blocked any understanding that may exist. The erection of a barrier between the two appropriately located objects had the effect of reducing the bias to one location, although subsequent choices to _this_ and _that_ were not necessarily correct.

Teaching a small sample of children (Experiment 12) the distinction between _this_ and _that_ based on an object's relative proximity from the speaker enhanced subsequent performance on comprehension tasks. While not telling us _how_ young children come to appreciate the spatial contrast between _this_ and _that_, the isolated variables apparently were the aspects of the situation children must master before there is competence with the demonstratives.

Chapter 5 provides a brief overview of the experiments. The functions of _the_ and _a_, and _this_ and _that_, as elicited by the experiments, were provided at the ends of Chapters 2, 3 and 4 respectively, but an integrated summary is given, looking at the potential links between the articles and the demonstratives as a system of determination. The importance of examining the linguistic and nonlinguistic performances of children in experimental tasks is stressed, as this approach gave indications of the functions of the determiners in the speech of three year old children. Evidence to support the view of a functional system of determination was also provided through the uses of the articles and demonstratives.

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Chapter 1 Literature Review.

1 : 1 Introduction

During the child's acquisition of language, one of the most basic syntactic and semantic distinctions he is asked to make is one between the specificity and non-specificity of his reference, whether concrete or abstract, in discourse. One of the important ways in which this can be done in English is by the use of the definite article, the, and the indefinite article, a. The articles can be viewed as syntactic devices providing differential emphasis (or marking) to common nouns, directing attention to the perceptual, cognitive or temporal status of the referent. The use of the definite and indefinite articles by the child is also clearly linked to a capacity to indicate the status of a referent to another person in a dyadic situation.[1] This involves an awareness of the hearer's present knowledge of the referent so that the speaker can make the appropriate marking according to the specificity or non-specificity of the referent. Certain attention-drawing features are necessary in the language for the speaker to be able to introduce new referents into discourse and make them prominent so that the hearer realises they are new, and also to enable conversation about previously mentioned, already salient or well-known referents. The child has to learn to use the articles in the appropriate situations and must know how to convey information about jointly known or unknown objects to another person, taking into account the other's (presumed) present knowledge or ignorance of the object, depending on the situational and linguistic contexts.

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1. By dyadic situation, I refer to any situation where there is someone communicating information (speaker, writer, addresser etc.) to an audience, either singular (hearer, reader, addressee etc.) or a collective audience. For convenience however, I will refer to the members of a dyad in discourse situations as speaker and hearer or listener.

The demonstratives, this and that, can also be used similarly to the definite article, though the contrast between them relates to the relative spatial location of objects. Much of the discussion pertinent to the definite article is also relevant to this pair of words, as they too indicate specificity of reference. However it is possible that they are acquired prior to the articles - they typically require a concrete referent, either physical or conceptual, to be in the focus of attention of two people. The demonstratives are closely related to the definite article and together they provide a system of determination which is highly sophisticated.

There are many aspects to the use of the determiners - syntactic, semantic and pragmatic - and in looking specifically at the child's acquisition, one is not precluding the relevant grammatical, philosophical and psychological literature pertaining to facets of their use. This literature encompasses theories of reference, as the articles are always used in a referential situation. In discussing reference, it is difficult to restrict this to the use of the definite article and the demonstratives and to quote Stalnaker (1972, p.394):

> Referring is something done by people with terms and not by the terms themselves. Referring is a problem of pragmatics and the role of the singular term depends less on the syntactic and semantic category of the term itself than it does on the speaker, the context and the presuppositions of the speaker in that context.

The act of referring means picking out certain features of the situational or linguistic context by gestural or linguistic means, but there must be two or more individuals in communication to make reference 'work'. One can look at the linguistic literature related to reference and the structure of definite referring expressions by examining the research that has been carried out into co-referentiality and anaphoric reference, using demonstratives, articles and pronouns. These syntactic studies, aimed at showing the grammatical

relations between sentences and clauses, are based on transformational grammar and the distinctions between deep and surface structure representations of sentences. These studies include such work as that of Dik (1968), Dougherty (1969), Huxley (1970), Leech (1974), Partee (1972) and Ross (1970), and present formal analyses. While providing a theoretical background to the more recent pragmatic studies in language and thus being useful, there is no need at present to expand their ideas, since interest lies in the child's acquisition and use of the terms for determination in informal conversational contexts. More relevant ideas are contained therefore in psychological research concerned with the use of the determiners in referential situations - the pragmatics of the determiners, which is what reference is all about. This will be expanded later in a section dealing with psychological investigations and the use of the determiners.

Another way of looking at the determiners is to study their use cross-linguistically, and in many instances this involves not looking at the articles and demonstratives, but looking at the linguistic means (such as word endings) for the expression of the definite-indefinite distinction. Kramsky (1972) did just this and concluded that the distinction 'determinedness vs. indeterminedness' is indeed universal, as it underlies all thought.

The major part of Kramsky's monograph is taken up with a comparative view of the category determinedness vs. indeterminedness - looking at how different languages, both old and more developed, semantically and syntactically represent this distinction. Kramsky groups together different languages which use the same means to express this category, e.g. languages possessing the definite and indefinite articles such as English, French and German (although there are differences between these languages in the grammatical status of the articles), languages using solely inflection of nouns and adjectives such as Turkish and Serbo-Croatian, and a language such as Ossetic which uses stress

and intonation. There are also languages with no articles, e.g. the Slavic languages, and these are also considered.

This monograph shows how the article in English functions within the hypothesised universal category of determinedness vs. indeterminedness, and provides useful cross-linguistic comparisons and a brief historical background to the functions of the articles compared with other forms of determiners and noun markers. It succinctly expresses and it usefully summarises a number of important issues in the comparative and historical study of the articles.

Historically there is a link between the determiners. The definite article is derived from the Old English neutral demonstrative pronoun, _poet_, which split to produce the definite article, _the_, and the demonstrative pronoun, _that_ (the weak, non-contrastive demonstrative). Both these word forms can be used determinatively, in the sense that they both serve to situate a referent in context - _the_ being used to indicate specificity of an object in context, and _that_ being used to add context to the head noun, thus making a concise, unambiguous reference. There is some debate as to the different derivations and uses of the definite article and demonstratives - and this aspect will be taken up later - with Thorne (1972, 1974), Grannis (1974), Postal (1966) and Sommerstein (1972) being the main protagonists.

The indefinite article is derived from the Old English, _an_, which served either as the indefinite article or a numeral. To this day _a_ and _one_ have basically the same meaning and are virtually interchangeable. However there are circumstances where _a_ is preferred to _one_ - for example, with the use of an idea contrary to the unity expected - after _not_ - and also after certain prepositions. Perlmutter (1970) believes that the indefinite article is represented in the deep structure of the language by the numeral _one_, and there is an automatic obligatory conversion of the unstressed _one_ to _a_. _A_ can be

used where one is the only possibility and conversely - e.g. you cannot use one plus a mass noun (? one butter), therefore you cannot use a. The distribution of the indefinite article is thus dependent on the distribution of the numerals. The definite article is added to the antecedent NP of a relative clause (relativisation), though only the article is added, not the definiteness. The definiteness comes after the deletion of one or a, after the has been added. This hypothesis rejects Chomsky's (1965) idea that the definite and indefinite articles have the same deep structure origin, and instead only the indefinite article is represented in deep structure by one.

The idea that the presence of the definite article is due to the addition of a relative clause has been pursued by other writers. Robbins (1968), Smith (1964) and Vendler (1967) have all provided accounts of the relativisation process, within a transformational grammar approach, and how this process affects the use of the articles. These accounts deal in particular with the effects of the relative clause on the definiteness of the main modifiers within the clause. While none produces an adequate explanation, what does become clear is that deriving the definite article from a deep structure kernel which also contains the indefinite article is not the best solution. The transformational approach to language apparently does not give the required answer.

Most of the research into the acquisition of the articles has begun from the assumption that the definite and indefinite articles are indeed part of a contrastive system of acquisition. In order to discuss and evaluate these studies (in Section 1 :4), it is necessary first to examine the grammatical

theories on which the psychological studies are based. However, having looked at some attempts to study the derivations of and the links between the articles and the demonstratives, it seems clear that the indefinite article is not historically part of a contrastive system with the definite article, and that the latter is more closely connected with the demonstratives. However, I shall now look more closely at the contrastive system of the articles and the demonstratives to see the grammatical and syntactic forms of each pair of words.

1 : 2 Grammatical and syntactic views of the determiners

a) The articles.

In grammatical analyses of the articles a tripartite division is most often suggested in the form of the determiner before the noun - the definite article, the indefinite article and no article (= the zero form, Christophersen, 1939, Jespersen, 1949, and others).

The form of the determiner used depends on the type of noun (mass-noun/ continuate-noun, unit-noun or proper name) and the use to which the noun is being put. Jespersen's (1949) table of the privileges of occurrence of the articles with the three noun forms attempts a classification which forms a basic starting point (see Table 1 below):

Table 1 : Article/Noun Occurrence
(From Jespersen, 1949, p. 437).

Noun category	Article category: Indefinite	Definite	Zero
Unit-word	X	X	-
Mass-word	-	X	X
Proper name	-	-	X

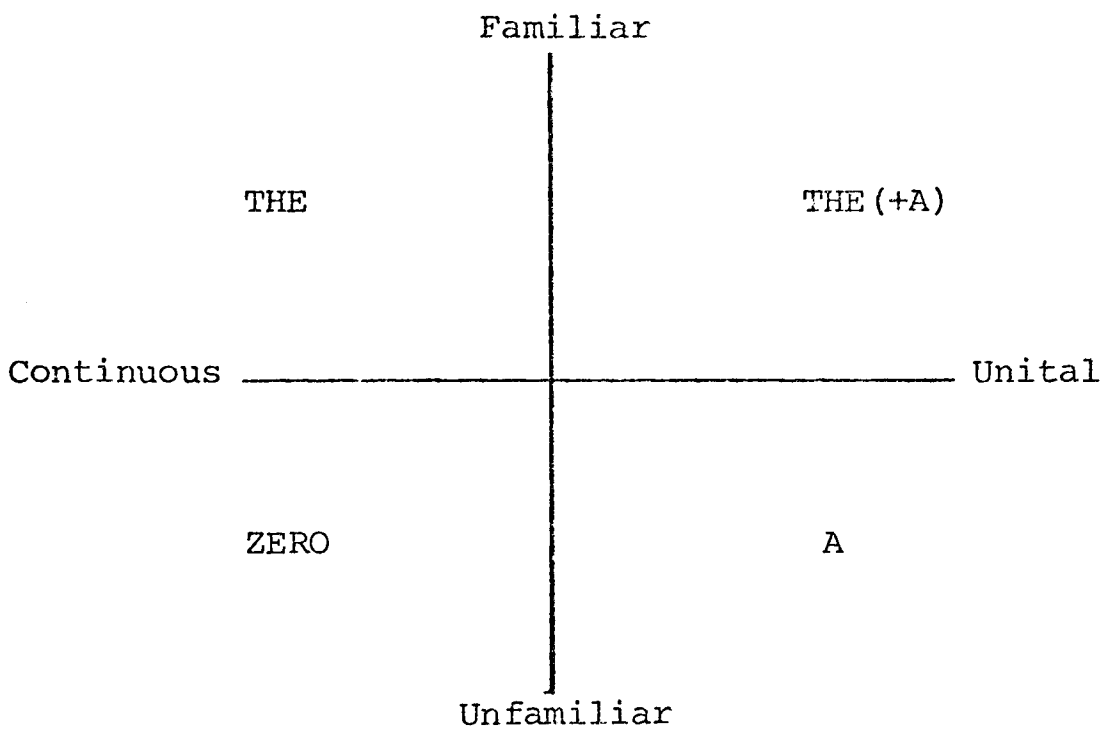
(X marks the occurrence of the article category with the type of noun category indicated.)

A unit-word (i.e. a count noun) can take either the definite or indefinite article, and mass-words (i.e. an uncountable noun) can take either the definite or zero article form. Plural nouns are semantically equivalent to mass-words, except that they are countable and also admit determination by the definite and zero articles. Jespersen's theory for the use of the articles is based on the familiarity or unfamiliarity of the idea represented by the noun. Stage 1 is one of complete unfamiliarity with or ignorance of the idea behind the noun, and singular unit-words take the indefinite article at this stage, while singular mass-words together with plural unit-words take the zero form. Stage 11 is one of 'nearly complete familiarity' with the noun, and the is used. The necessary determination for the use of the definite article is provided by the context or by the whole situation. In Stage 111, there is such complete familiarity with the noun and the idea behind it that no article is used - such nouns include ideas such as meals, members of the family and proper names.

Christophersen (1939) also presents a theory of the meaning of the articles based on familiarity and unity. Familiarity is associated with the use of the definite article and indicates that the referent is specific for both the speaker and hearer. A, on the other hand, marks the noun with an element of unity, but neither marks nor precludes familiarity. Christophersen also classifies nouns as being unit-words, continuate-words or proper names, whose admission of the article forms is the same as the classification put forward by Jespersen. Because in unit-words the idea of unity is inherent in the noun, the indefinite article merely stresses this element. If a is not used, the word is taken to be continuate - so the use of the indefinite article can help determine the interpretation of some nouns which may be either mass or continuate, e.g. cake. So Christophersen postulates two continua - one of Familiarity and one of Unity - which form the matrix shown in Figure 1.

Figure 1: Familiarity/Unity Theory

(From Christophersen, 1939, p. 75).



This diagram of intersecting co-ordinates forms the basis of Christophersen's theory and every substantive (noun) fits into one of these quadrants, as each substantive has elements of positive or negative familiarity and unity. Christophersen discusses in great depth the use of the articles with unit- and continuate-words, and also with plurals. He traces the origins of the articles historically and examines deviations in the sense of the articles from their established determinative uses. The is believed to have two uses, both derived differently - one sense is called the preparatory use where the referent has yet to be mentioned and identified, and the other, the resumptive use where the reference is to something already mentioned. In this latter use, the demonstrative and the definite article have a similar function.

Strang (1962) takes a very similar view to Jespersen and Christophersen when describing the function of the articles, their use as markers of NPs and how they contribute to the meaning of the head word as noun in the NP. She again differentiates between countable and uncountable nouns and shows how they can be distinguished by the determiners that are admissible with them. She too allows the zero form (i.e. the absence) of the articles to function as a

term within the article system.

Quirk et al. (1972), like their predecessors, classify the relationship between nouns and the articles in terms of count nouns, mass nouns (together = common nouns) and proper names, and the three forms of the article in singular and plural. They add nothing new to the classifications previously mentioned, but their lucid diagrammatic presentation and listings provide a concise grammatical overview of the use of the articles with different nouns in referential situations.

Other grammarians have looked at problems involved in the uses of the definite article for individuals learning English as a second language. Michaels (1968) takes what he calls the pragmatic approach to teaching foreigners the uses of the definite article, and he looks at the contexts (situational and linguistic) that can demand the definite article. He also looks at generic the and postulates that the articles (in singular and plural) can have two features - Definite and Particular - both of which must be present but either as a positive or negative feature. In such a way, one can determine the (+Definite, +Particular) = the particular individual and no other, from the (+Definite, -Particular) = generic the. Likewise, a can also be differentiated.

Grannis (1972) postulates a 'uniqueness conspiracy' existing between speaker and hearer for the use of the definite article - they must both share an attitude of uniqueness of the referent. He believes this adequately accounts for the referential complexities involved in the use of the definite article, especially for foreign learners of English.

These grammatical studies are valuable because from both the point of view of the native English speaker and the foreigner learning the language, they concisely expound the uses of the definite article, the indefinite article

and other forms of the article. The syntactic, semantic and pragmatic uses of the articles are all important and the grammarians provide a basis for philosophical and psychological studies involving the semantics and pragmatics of these syntactic devices.

b) The demonstratives

There is not the amount of literature pertaining to the demonstratives that there was for the articles. What exists either is incorporated into discussions of the articles, or has been written about a language other than English. Basically, according to grammarians, the demonstratives, this and that (and their plurals), indicate nearness and distance from a central reference point, usually the speaker. There are two functions that these words can have - nominal and determiner, and they can only be contrasted in the nominal function. They have an anaphoric use, for talking about something already mentioned, and they have a deictic use, referring to something outside the utterance. In both these cases, this and that are contrastive, based on the notion of (± Proximal) -- be it spatial, temporal or conceptual, inside or outside the current utterance framework. Both this and that can be used to establish a discourse referent - this is particularly used for cataphoric reference, where the determiner has forward reference to a post-modifying prepositional phrase or relative clause, e.g. "this is what I mean by a good example". That, on the other hand, is used for anaphoric reference (for which this can also be used, but less commonly) to establish a discourse referent. The anaphoric determiner is bound to an earlier reference of the same noun (the antecedent) and there is co-reference between the two, e.g. "The spoon please. I mean that big one please.". That (and those) can only be used determinatively, i.e. to situate the referent within the current context, e.g. "I've never seen any flower so beautiful as that which you bought me". Finally, this can be used emotively in sentences like, "Well, then this naughty boy turned round and hit me", where the use of this conveys the impression that both the speaker and hearer know the boy in question. The

familiar use of this also extends to informal colloquial speech and has the notion of conceptual nearness.

These grammatical analyses of the articles and demonstratives provide a basis for the subsequent psychological studies. Before considering the research that has been conducted into the acquisition of the articles and demonstratives, there are several integrated theories of determiner acquisition which must also be considered. These integrated theories do not totally depend on the grammatical analyses just provided, that is, they do not necessarily regard the articles as being part of a contrastive system. However, they are examined in depth in the next section, since they tend to incorporate the articles within total systems of determination. The non-contrastive view of article use (and acquisition) lays the theoretical basis for the empirical work to be presented in subsequent chapters.

1:3 Integrated theoretical approaches to the determiners

Some researchers (cited in 1:4) have specifically looked at the acquisition of the articles and/or other determiners as a system and have used empirically derived data to propose when and how the articles are acquired. Other investigators however, have examined the acquisition of the articles and other determiners from a theoretical viewpoint, and, without empirical data, have proposed models of either the acquisition of the determiners or systems of modern-day use.

a) Lyons; Atkinson

One approach to the development of definite reference is found in Lyons (1975, see also 1977), where he looks at the child's developing awareness of interpersonal spatial and temporal deixis as being 'the source of reference'. He believes that the use of both the definite article and the third person pronouns is anaphoric (i.e. coreferential with some other prior NP) and parasitic on the derivation of deixis. He distinguishes three grammatically distinct classes of definite referring expressions in English - proper names,

pronouns and definite NPs. Children as well as users of languages other than English may omit the required determiner in definite NPs and so use them like proper names. Lyons hypothesises a language known as Quasi-English which is simpler than Standard English, but, as rules are added, approximates English and enables useful comparisons and postulations about the ontogenesis of referring expressions in children as they build up rules in a similar manner. Initially Quasi-English possesses a 'single deictic particle', neutral with respect to the distinctions of gender and proximity found in the personal and demonstrative pronouns respectively. This particle functions as an attention-drawing device in a situation where part of it warrants attention being focussed on it and is normally accompanied by a paralinguistic gesture such as a head nod or a point. The meaning of the particle approximates to 'look' or 'there', but to an adult interpreter there may be some ambiguity in the interpretation of such referring expressions at their most primitive.

Lyons goes on to look specifically at NPs composed of a demonstrative and noun. The demonstrative adjective (this or that) incorporates both the definite article the plus some notion of spatial location. The grammatical-isation of such referring expressions is postulated to be found in an equative, appositional link between the demonstrative and the associated noun, e.g. that dog = that entity + the/a dog, with the being the more natural appositive.

Lyons compares his hypothetical language with Standard English in terms of the diachronic relations between the definite article, the demonstrative and the third person pronouns. Postal (1966) argues also for a synchronic relationship, and that the 'so-called' personal pronouns, I, our, they etc. are really forms of the definite article. Definite and indefinite status of a noun is indicated superficially by a particular article, and Postal goes through the various grammatical transformational rules to show how the so-called pronouns have the same derivation and status as the definite article.

Thus on the surface these definite personal pronouns should be regarded as special forms of the definite article. Sommerstein (1972) has taken the converse view to Postal and in a theoretical paper, he systematically argues against each point made by Postal in his attempt to show how the definite article is the pronoun, and definiteness is inherent in NPs and not in the articles themselves.

Thorne (1972) has taken the view that the definite article is a deictic determiner +the feature Definite, and the definite article and the third person pronouns are basically demonstratives. For example, the is seen as being the reduced, unstressed form of that. Thorne also looks at other deictic determiners, such as here and there, and proposes that noun phrases should be derived from an underlying structure containing a deictic sentence as a relative clause, e.g. the man = man, who is there. This latter view is the one to which Lyons subscribes and he produces arguments for this notion of derivation. However, Grannis (1974) criticises Thorne's postulation by showing through examples that definite referring expressions are not derived from deep structure locatives. He calls upon his 'uniqueness conspiracy' (see Grannis, 1972) to advocate a view that it is important when a speaker uses the definite article he knows the hearer, within a particular context, will assume uniqueness of referent. He believes that the unstressed that can only be used deictically and contrastively, and as such the definite article is not derived from spatio-temporal notions in deep structure. Thorne (1974) replies to these criticisms very simply by citing evidence of the non-contrasti use of that, using as an example 'Stop that noise!' where the definite article would also suffice. He is thus able to maintain his position concerning the derivation of the definite article. This derivation seems to be the most comprehensive and plausible, and it is to this notion that the rest of this thesis will adhere, both theoretically and empirically.

To return now to Lyons (1975). The definite article, unlike the third person pronouns and the demonstratives, which are distinguished for gender only, and for proximity only, respectively, is not so distinguished in terms of these degrees of markedness and cannot be used alone as a referring expression. Some other information must be contained in the reference as well. This person implies an individual located near to the speaker whereas he informs the speaker that the individual is male, but provides no information about his spatial location. Lyons proceeds to outline the derivation of the definite article from the deictic distinction of proximity found in the demonstratives (and the locatives). This (and here) are semantically marked in relation to that (and there) with the opposition being proximal/non-proximal, and only when there is an explicit contrast with the proximal term does the non-proximal demonstrative imply remoteness from the speaker. This deictic distinction of proximity is thus important in Quasi-English, for all that is required to generate the definite article is a rule converting the unmarked, weak demonstrative $\underline{\text{that}}_{(1)}$ into the, based on stress as postulated earlier. This is the non-contrastive use of that. Lyons continues to try to include gender distinctions in his hypothetical language. When an individual wishes to refer to a non-personal entity, it can be located deictically by using the marked, strong demonstrative (this, or the contrastive that), or non-deictically using the weak demonstrative ($\underline{\text{that}}_{(1)}$); the deictic location of a personal entity must have an appositional noun (or the dummy, one) introduced into the referring expression.

Lyons introduces notions of existence into his theoretical framework, and also the relation between proper names and definite referring expressions. He believes that uniqueness of reference is context-dependent, a fact one cannot deny when dealing with pragmatics, and this applies with equal validity to the definite article, the demonstratives and the third person pronouns. The deictic demonstratives must imply existence in a certain spatio-temporal location of an entity to which the speaker wishes to draw the hearer's

attention, and the child who is learning to use the articles appropriately may well indeed first have to learn spatial location relative to himself and the non-contrastive use of the demonstrative could then come later.

This paper of Lyons' is most stimulating and exciting - a framework from which it may be possible to formulate hypotheses about the infant learner. The notion of a hypothetical language can be likened to the Language Acquisition Device devised by Chomsky and so popular in the 1960s, but Lyons does state that he does not assume the child to proceed in the same manner in constructing a grammar of English, viz. first distinguishing between pronominal and adverbial deictics, then mastering the deictic distinction of proximity, then distinguishing the personal pronouns from the deictic demonstratives. But what is being shown is a way in which certain features of the English language derive ontogenetically from a universal base. This kind of theoretical framework could well be plausible for future psychological investigations because as is cited later, for example, Warden (1973) found that children were able to use this and that contrastively at an earlier age than they could contrast the definite article with the indefinite article. The child may find the descriptively more adequate contrast inherent in the strong form of that sufficient for his means. He will thus only use that deictically until the determinative use of the demonstrative becomes amalgamated into the more abstract and less informative use of the definite article. The definite article also can only be used in situational and linguistic contexts where there is an assumption of knowledge of the referent on the part of the speaker and hearer. This and that can be used where there is no such knowledge since they indicate location and the pronouns indicate personal identity to the hearer - and these uses might be the ones the child learns first.

Atkinson (1974) looks at the discourse conditions necessary for the use of

the definite article with a common noun, such that the addressee can immediately identify who or what the speaker is really talking about. He finds that the object or individual in question has been made prominent (in terms of being in the attention of both speaker and hearer) either by earlier discourse or by some other means such as an introductory clause or pointing. The addressee is thus able to identify the referent by attending to a relatively small class of individuals, referred to now by the speaker with a pronoun or a simple definite expression.

Ontogenetically, Atkinson concerns himself with the development of single words from their precursors in pointing etc., and the ontogenesis of reference, starting from Lyons' 'single deictic particle' to holophrastic speech. Words such as 'look', 'see', the demonstratives, and even instances of common nouns, act specifically as attention-drawing devices to particular objects or individuals. Their properties including spatial and temporal location, are used by children during language acquisition to set the scene for the development of more advanced understanding of the functions of speech. Eventually such terms come to be used (by older children and adults) to draw attention to the object they are interested in (this function appears very early in linguistic development with the single deictic gesture coupled with an ostensive gesture) prior to the more adult activity of linguistically locating objects (without recourse to gesture necessarily) in some stable frame of reference.

Atkinson, like Lyons, sees the need to look at deictic terms and how they are used initially to direct the hearer's attention to the total object, accompanied by an ostensive gesture. As the linguistic devices available to the child become more varied (cf. Karmiloff-Smith, 1979), he can come eventually to use solely linguistic devices to indicate parts (either spatial or temporal or whatever) of an object or individual. All these ideas of

Atkinson's are very interesting and sound very plausible - but there is here a lack of empirical material, although the author is aware of this problem.

b) Hawkins

Hawkins (1978) is a philosopher concerned with the article functions in modern English. He wished to construct a unified theory of definiteness and indefiniteness in order to evaluate this theory against the grammar of the language. He considers both the pragmatic and the logical aspects of the articles, and although he does not discuss his theory in terms of language acquisition, it is useful to consider his notions. He draws heavily on Christophersen's (1939) and Jespersen's (1949) ideas of the grammar of the language, together with Yoksukura's (1970) structuralist account of article use.

Hawkins develops a speech act (cf. Searle, 1969) account of definiteness - the location theory, and he says:

> The use of the definite article acts as an instruction to the hearer to locate the referent of the definite NP within one of a number of sets of objects which are pragmatically defined as the basis of .... shared speaker-hearer knowledge and the situation of utterance. .... The definite description refers 'inclusively' to the totality of objects satisfying the descriptive predicate within the relevant pragmatic set.
>
> (p.223)

So the contrast between the and a rests on the notion of inclusive (all) and exclusive (not - all) reference. Having proposed the theory, Hawkins then considers ungrammaticalities, and proposes semantic explanations. He also considers the difference between definite reference with the and the demonstratives, in terms of his location theory.

The theory rests on the notion of an understanding of exclusive and inclusive reference, and for a developmental model would appear

inappropriate, since the inclusion relationship, at least cognitively, is acquired later than early uses of the articles (cf. Inhelder and Piaget, 1964). However one investigator has considered the application of Hawkins' model to the acquisition of the articles (Dunlea, 1978). This study will be reported later in this chapter. Overall, Hawkins postulates the need to examine the relationship between the definite article and the demonstratives. The historical link is clear, and should this link be found ontogenically, we will be nearer to a clearer explanation of the functions (particularly the changing functions with age) of the definite and indefinite articles.

c) Chafe; Ducrot

Finally, two other authors require mention. Like Hawkins, neither looked at developmental models, but both are theorists concerned with the uses of the articles and demonstratives, and are included to provide an indication of the breadth of the area of study.

Chafe (1970) discusses the distinction between the presentation of old and new information in discourse. Old information is the unmarked topic of a sentence, while new information is the marked comment. These divisions into new/old and marked/unmarked information can lead to greater effectiveness in communication between speaker and hearer in discourse. Old information can be introduced with the use of the definite article, because the speaker has, and assumes the hearer has also, knowledge of and familiarity with the identity of the object. New information is introduced by means of the indefinite article. This distinction is similar to that made by Kramsky (1972) and is also in line with Brown and Maratsos' nine conditions where the definite article can be used for successful communication with no ambiguity. But Chafe goes deeper into the distinction, looking at how the structure of active and passive sentences composed of Noun + Verb or

of Noun + Verb + Noun depends on the conveyance of information, both old and new (i.e. known and familiar vs. unfamiliar) between two individuals in discourse. Word order, intonation and the articles are all important in the representation of old and new information.

Chafe (1972) looks briefly at the semantic constraints that are temporarily introduced linguistically into discourse, and sees that with the narrowing down of a lexical concept, the definite article becomes applicable for specifying degrees of definiteness in that context. The speaker thus knows a certain subset or instance and he assumes his hearer also has this knowledge, and the hearer knows he is currently talking about that subset or instance. Chafe believes that definiteness can be established by the use of proper and unique names, or by environmental factors, either externally introduced (these can be real or assumed, e.g. references in literature to fictitious characters), or established semantically by what has already been said. Definiteness is seen to be obligatory so long as the lexical item under consideration remains in the foreground, physically or linguistically, otherwise the use of the definite article is optional, particularly when notions of time and space variables are under consideration. Definiteness can also be brought to a noun through the use of a relative clause attached to that noun, and the context of that relative clause must serve to particularise that noun.

Chafe provides further pieces in the complex picture of the functions of the articles and how they develop. The articles may well be carriers of the distinction between old and new information, and this notion should perhaps be incorporated more fully into the classification of the functions of the articles.

Ducrot (1972) writing about presupposition in his book 'Dire et ne pas dire' considers the relationship between the definite article and the demonstratives - both of which are definite descriptors and can also be used referentially. The major difference between the two is that the definite article, as well as marking the existence and unity of an object, can also be used as an expression of presupposition. This use is independent of the referential use, and the definite article can be used in situations where the demonstrative cannot -- while the demonstrative is always replaceable by the definite article, the converse is not the case.

The points raised in Ducrot's chapter are related to the topic of presupposition - the theme of his book - and in this respect are limited but interesting nevertheless. The distinction drawn between the definite article and the demonstratives in terms of their referential capacities is valuable; the main distinction being that the definite article can be used to establish the unity and existence of present or absent objects, which then themselves become presupposed in the world of discourse. Ducrot believes this function to be separate from the referential function of the definite article - a use that can be fulfilled by the demonstratives, provided that the object exists within a given spatial universe designated by the gesture and name. The demonstratives require the prior existence of the object, while the definite article can constitute an object, which then becomes part of the universe of discourse, i.e. presupposition. Thus, according to Ducrot, the principal function of the definite article is to conserve the presupposition in discourse. This point is related to Grannis' (1972) 'uniqueness conspiracy', although the discourse Ducrot discusses is extended, while allowing complicity between participants in discourse.

1 : 4 Recent psychological views of article acquisition

Having looked at the various linguistic and logical proposals as to the use of the articles, it was apparent that the articles were to be regarded as a contrastive system. However, in the psycholinguistic, theoretical, approaches, the determiners were regarded as a total system. Thus there are two approaches to the study of the articles - there is the contrastive approach and there is what will be termed the functional approach. Within each of these approaches, both the articles and the demonstratives can be studied. In the contrastive approach, the articles are regarded as one contrastive system, while the demonstratives are regarded as another contrastive system. In the functional approach, both the articles and the demonstratives are seen as being part of one system of language use.

The recent psychological literature, like the grammatical versus the integrated approaches to determiner use, divides into two approaches, each with separate content areas. The contrastive approach to article acquisition is taken by Brown (1973), Maratsos (1976) and Warden (1973, 1975), while the contrastive approach to demonstrative acquisition is taken by Clark (1978). The functional approach, regarding the articles and demonstratives as part of a total system of determination, is taken by Karmiloff-Smith (1976, 1979) and Wales (1979). Bresson (1974) regards article acquisition only within a functional framework, as does Dunlea (1978), who uses Hawkins' (1978) functional framework for an analysis of naturally occurring instances of the definite article and the demonstrative, that.

Firstly, the acquisition of the articles will be considered, with the contrastive approach being discussed prior to the functional approach.

a) The contrastive approach

Brown (1973) and Maratsos (1974, 1976) worked closely together on the problems involved in children's use of the articles, and formulated categories of degrees of specificity of referents, and how the child comes to make appropriate references within these. The definite article refers to a particular member of a class, a specific referent with distinctive properties and characteristics, a particular X; while the indefinite article refers to no particular member of the class, a non-specific referent, and may sometimes even refer only to the notion of a member of a class, e.g. "I have a new bicycle; I haven't got a car anymore". The child then has to formulate the use of the articles consistent with the abstract distinction between specific and non-specific reference to members of a class set. Also, in discourse, there is required to be shared knowledge of the conversational elements between the speaker and hearer before a definite article can be used, because when the speaker makes a reference using the, he must intend a uniquely specified member of the class and know that the hearer also has knowledge of this referent, i.e. the referent must also be specific to the hearer. Brown and Maratsos both list nine ways in which the speaker using the definite article before a noun can ensure that this uniquely defined referent for himself will also be unique in the conversational context to his hearer. The referents can be:

1. unique for everyone, e.g. the Queen, the sun, the moon.

2. unique in the shared knowledge of a specific social group, e.g. the boss (at work), the dog, the car (within a family group) etc.

3. unique, conspicuous in a given social setting (usually the present one), e.g. the floor, the ceiling, usually refer to the ones in the room of discourse - likewise for the door, the window etc.

4. made salient by pointing or by some other gesture by the speaker. This is often a deictic device used with the demonstratives to indicate a precise referent, but may accompany the also.

5. made salient or specific by further elaboration of the class description by the speaker. This may be needed in the case of ambiguity, since the specificity of an object does not inhere in the object itself but in the relationship (provided linguistically) between the object and the class-membership description given, e.g. the chair beside the window, where chair is only made specific in relation to the window, where window is unique in that situation.

6. made salient by certain attention-getting characteristics inherent in the object and setting it apart from other members of the class, e.g. colour, proximity, size etc.

7. specified by prior utterance in the conversation. The first mention of a new referent to be introduced is by the use of a, the specific indefinite (Maratsos) where the introduction of a new referent into discourse deems that the speaker defer to the hearer's presumed lack of knowledge. The referent is then unique in the present discourse between the participants, and future references can be made using the definite article. This is what linguists term anaphoric reference. Karttunen (1968) talks about discourse referents, i.e. a referent introduced during the discourse and then referred to again. Specific NPs always establish discourse referents which are referred to in the future by the use of the definite article. Such discourse referents are created or introduced by indefinite NPs, asserting existence, and future references asserting uniqueness of that referent in the present context are made using definite NPs. The distinction between definite and indefinite NPs (in terms of specific and non-specific reference in discourse situations) is a function, Karttunen believes, of the intentions of the speaker, specificity being defined as the speaker having a certain referent in mind and wishing to convey the uniqueness of this referent in the present context to the hearer.

An example of establishing a discourse referent would be, "I saw a man today. The man was wearing a red hat.". Strictly speaking, in such a case, this would be preferred to the, as the definite article is more often used after a lapse between introduction and further mention, while this is more natural, particularly in colloquial speech.

8. specified by definition, e.g. the first of the month, the final score, etc.

9. specified by entailment. Simply by mentioning some referent or situation may (necessarily) entail the existence of some other immediately specifiable referents, which in turn can themselves become discourse referents, e.g. "I was driving when the engine caught fire", or "I was looking at a house yesterday and the kitchen was beautiful".

Situations 1 - 3 are all very similar, the referent being in some way unique, either contextually or situationally, and in fact this is in some respects true for all occurrences of the definite article. In 1 - 3 they are all implicit, while in 4 - 6, they must be explicitly, overtly specified or made salient by the speaker. Whereas 1 - 6 can be linguistically or extralinguistically stated (usually the latter), 7 - 9 must be established linguistically, particularly in 7 where prior introduction of the referent in discourse permits further conversation about the referent using the definite article.[1] Both 8 and 9 are cases where the use of the definite article is implicit and is given as a cultural convention as no explicit explanation is needed for the use of the. Situation 8 shows examples where common phrases employ the definite article by definition and in 9

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1. This is not always the case, as the definite article may be used without prior introduction but this is often for stylistic effect to keep a reader, for example, reading a story, or to maintain attention in the case of an audience or hearer.

there must be an inherent relationship between objects that is understood by both parties engaged in discourse.

So the child must then be able to distinguish these conditions where either explicit or implicit contextual and/or linguistic information is available for the use of the definite article. His formulation of such a sensitive system, based on syntactic devices, must be such that it is abstract and sensitive to any of the previous discourse variables for the use of the definite article. Brown and Maratsos have also constructed a table indicating the relation between the use of the definite and indefinite articles and the referential situations in which they can occur, either for specific or non-specific references, depending on the knowledge of the speaker and hearer.

Table 2 : The relation between the and a, and specific/non-specific reference in speaker and hearer (after Brown, 1973, Table 48, p.392).

	Speaker specific	Speaker non-specific
Hearer specific	THE (=discourse referent) Sp has specific ref. in mind and confident H will understand.	A (?)
Hearer non-specific	A (=introductory use) Sp deferring to H's presumed lack of knowledge.	A (= any member of a class, ficticious, non-existent or negative).

Sp = Speaker
H = Hearer

Underlying the idea of specificity of reference is the abstract system of classes or sets, and class membership with the cognitive notion of a unique member, and there are various ways of making a member unique - by the use of previous propositional context, physical attributes, etc.

A non-specific reference rests on the idea of any member of a class or on no class or no member at all. Maratsos goes on to deal with non-egocentric (in Piagetian terms) reference and shows that the child has difficulty in taking into account the listener's presumed knowledge, or lack of it, of the referent. He proposes that definite expressions are interpreted by the 'theory of contextual (either verbal or physical) inspection for a conspicuous member', whereas indefinite expressions, shifting reference from a discourse referent, are likely to stand for any member of the class, excepting an already conspicuous one.

Brown adds a few more general points in his discussion of the articles - he states that it is up to the speaker to choose the form of the discourse and it is the speaker's conception of both the speaker and hearer and their respective amounts of knowledge that governs specific and non-specific reference.

Brown (1973) relies almost entirely on naturalistic data for his brief account of the referential use of the articles. He recorded both specific and non-specific references from Adam, Eve and Sarah, counting the occurrences and non-occurrences of the definite and indefinite articles in obligatory contexts (to a criterion of 80%), according to various situational circumstances (as defined by Brown, see previous pages) which determine whether the required form is definite or indefinite This proved to be impossible to categorise, so Brown classified all the contexts requiring an article together and established a stable acquisition point for an article system. He found that children somewhere between the ages of 32 and 41 months can control the specific-non-specific distinction as coded by the articles. The way in which he established this was by listing all the examples of correct instances of definite and indefinite articles in referring expressions from his protocols of three children. In the speaker-specific and listener-specific

situation, the children were able to make most of the definite and appropriate references in each of the nine categories where the is permissible, e.g. when the referent was uniquely specified or salient for both members of the dyad, when the referent was specified together with an ostensive gesture, etc. When the referent was in the attention of both parties, no definite articles were found, but definite pronouns were recorded. Definite by entailment and anaphoric definites were recorded, together with definite by definition. (For a fuller account, see Brown, 1973, pp. 389-406 .) In the case of speaker-specific and listener-non-specific, most of the examples were nominatives. When both speaker and listener were non-specific, there were a few examples of the speaker using a to mean any instance of the class.

Brown then, in a corresponding manner, looked at the errors made by the children, and the main errors were to be found where the child's (i.e. the speaker's) viewpoint diverged from that of the listener, and the child usually failed to decentre and appeared to be egocentric in his usage of the definite article. The inappropriate use of the leads to a failure in communication because the listener often responded uncomprehendingly. Interestingly, although there were many errors in that category, the child was able to use the indefinite article, as seen in instances of naming correctly. Errors were also found in other categories, but they were of only a minor nature.

Maratsos (1976) devised tests of production and comprehension of the definite and indefinite articles to experimentally find evidence for an estimation of the generality and abstractness of children's early use of specific and non-specific references. The evidence from which Maratsos' proposal is derived is based on carefully worded question and answer stories. The stories were constructed from adult-based notions of the uses of the articles and the responses the children gave were largely

appropriate by the criterion of agreement with adult responses. However, the contexts of the stories were contrived to produce these uses and the children were not free to deviate from article production in their responses. For example, Maratsos had children place their hands on their heads in one experiment to eliminate pointing and promote verbal responses. Also, although adult-based, it is not clear which functions of the articles the child is actually intending.

The stories used by Maratsos in his testing were created so that the difference between the articles carried a greater information load than usual, but where a different outcome should come from the child's understanding of the difference between specific and non-specific reference. A definite expression in discourse is usually interpreted by contextual inspection for a conspicuous member according to Maratsos, and this should not be determined by the recency of mention of the referent. The indefinite article in discourse usually has the effect of shifting reference from an already conspicuous member of the specified class, either to another and different member of the same class, or to a member of a different class altogether. Because of these discourse rules for the use of the articles, Maratsos in devising his tasks for comprehension and production made some very strangely worded stories. Two examples will suffice. In one story type, a referent is introduced with the indefinite article during the narrative (a X),and the child is then questioned about this referent, to which the response would be the anaphoric definite article (the X) - second mention of an already identified referent. The production of the definite article by the child does not necessarily mean a grasping of the notion of anaphora - children tend to refer with the definite article regardless. In a second story, several referents are mentioned (Xs) with no article form, and one is singled out for

questioning to which the child should reply a X - the identifying, introductory use. Should the child respond a X, he may be simply naming one of the referents. Because the stories appeared theoretically sound does not mean children will respond as adults - the functions could easily be different.

His results corroborated the results found by Brown. Maratsos was most interested particularly in the failure of the youngest to use the articles non-egocentrically. He found a widespread degree of competence in specific and non-specific reference. The children seemed to understand the as referring to class members already made conspicuous (either verbally or visually) in the present conversational context, while the indefinite article was viewed as referring to some non-conspicuous member. Although then, the child's competence appears to be highly abstract and general, it was found to be, when compared with adult competence, more fragile and open to interruption by cognitive difficulties such as attention span, memory limitations etc., and the use of routine responses. Most of the errors occurred, as in Brown's data, when the child's and the listener's viewpoints diverged, and the child would consistently make incorrect definite egocentric references, using the for objects the listener did not have awareness of already, regardless of the size of the difference of the belief worlds of the child and the listener. The children correctly made non-egocentric indefinite expressions, however, when the referent was neither specific to himself nor to the listener (i.e. the viewpoints converged as to the non-specificity of the reference).

The inappropriate egocentric use of the definite article coupled with the correct and appropriate non-egocentric use of the indefinite article is due, Maratsos believes, to the child always requiring specificity for himself. This would account for the non-egocentric references among children

who often refer egocentrically with an inappropriate definite article. The solution offered for early correct indefinite references stems from an early established semantic factor of specificity for the self. The child thus does not have the class member uniquely specified for himself when he refers to it, or he does not have the ability to mentally represent it uniquely. So in cases where the child makes a seemingly correct indefinite reference, it is because of a lacking ability for unique representation. This would also account for inappropriate definite references as the child will have specified an object uniquely for himself and fails to take the person's knowledge or viewpoint into consideration. So what is found in the child is only partial egocentrism, based on unique specification of a referent for the self and dependent on the rules of discourse and the knowledge of the participants. The child will egocentrically use the definite article when the referent is specific to himself and not for the listener - and this is inappropriate usage. On the other hand, the seemingly correct use of the indefinite article when the referent is non-specific to both the participants is due to an inability to represent certain material, perhaps new or unfamiliar, in a unique way. Maratsos himself seems more interested in the non-egocentric abilities of these young children, as the prevailing notions at the time of his writing were that the young child was egocentric in most of his cognitive and linguistic abilities.

Therefore the system of definite and indefinite articles depends on competence in the use of two semantic factors, according to Maratsos, and these are listed and explained below:

1. The specificity and non-specificity of the reference, i.e. the distinction between referring to a class member with a unique specification that distinguishes it from all other members vs. making reference to a referent marked only by class membership of the referring phrase, or by

making reference only to the idea of class membership.

2. Consideration of whether a reference specific for the self would make a correspondingly specific reference for the listener; whether the listener can identify the referent as being just one particular class member intended by the speaker.

Maratsos believes that storage of the necessary semantic knowledge for the use of the definite and indefinite articles is in the form of various sub-rules applicable to particular situations of discourse. For the child to say and mean the X, it is necessary that the person to whom he is talking be able to confidently assign a unique reference to the X, and that that reference be the same as the speaker intends. One thus needs sub-rules for evaluating whether or not the listener will be able to identify the X, e.g. sub-rules incorporating pointing at the X; X is in the same physical context as myself and the listener, and is the only X in that context; everybody knows X (the moon for example); X has already been mentioned; etc. These sub-rules act as indicators such that the listener can retrieve a unique X and the definite reference by the speaker to X is allowable. The retrieval section is based on abstract semantic knowledge mediating the connection between all the different sub-rules.

Maratsos outlines two developmental models of how the child comes to command full adult knowledge of the sub-rules for making definite reference. In the first model, the child initially commands the basic semantic knowledge for making non-egocentric references when he comes to use the articles, but this knowledge is applied only sporadically because of the possession of only a few sub-rules and primitive means of judging their applicability. With experience and age, he comes to develop more sensitive rules, together with better cognitive awareness such as attention span

This model can account for the child's egocentric use of the definite article, as feedback from the mother, questioning the applicability of the definite reference, can help in shaping the child's use of the criteria for using the definite article.

The second model suggested by Maratsos, which is diametrically opposed to the previous non-egocentric usage model, hypothesises that in the beginning of correct non-egocentric usage, direct correspondences are formed between the sub-rules and overt behaviour, without recourse to the intermediary non-egocentric semantic principle.

Diagrammatically, the two models are illustrated below:

Table 3 :

Maratsos' two developmental models (after Maratsos, 1976, pp. 101 and 102).

Model 1 - Time 1: Possession of semantic principle, sub-rules R_1-R_j

Time 2: " " " " sub-rules R_1-R_k

(where $k > j$, ie, child has more sub-rules)

Time 3: Possession of semantic principle, sub-rules R_1-R_n

Model 2 - Time 1: sub-rules 1 - i

Time 2: sub-rules 1 - k ($k > i$)

Time 3: non-egocentric principle of usage + sub-rules R_1-R_n ($n > k$)

These two models are not meant to be exhaustive, as sub-rules may be altered and even deleted over time, and also perhaps the principle of non-egocentric usage is only a convenient summary of a collection of reference rules. Maratsos does not try to evaluate these models, with each other or even against some external criterion. Maratsos is proposing

that there must be some way in which the child comes to realise that there are two factors involved in using the articles semantically, one inherent in the rules of discourse. It also involves an awareness of the knowledge of the other person which is based loosely on the child's ability to transcend egocentrism, as postulated to be seen in a number of the child's abilities at an early age. The other factor is semantic, deriving from the child's ability to distinguish class members as uniques from other class members.

Maratsos' work is interesting, even though constricting, and it provides a very useful theoretical introduction to article usage and to other aspects of child development, not only linguistic.[1] Referential communication is interesting as it has its precursors in early life, and incorporates all manner of notions such as personal, temporal and spatial deixis, egocentric and non-egocentric communication, and with the use of the articles, notions of classes and class membership, specification of uniqueness, and discourse variables. Maratsos may be an object lesson in how not to concentrate on devising elaborate tasks in balanced design with fine control over all the possible variables, but to make the situations more natural and as interesting as possible for the child. It cannot be denied that Maratsos has made a start in trying to discover how the child comes to use the articles appropriately in certain situations, what the errors in making statements incorporating the articles might be, and trying to explain these errors. That is always a useful way to study language acquisition, although today in general most studies of language concentrate on everything said by the child and mistakes are not seen as 'errors'. When investigating the semantic and pragmatic aspects of article use, then, these factors must be studied - one cannot look at the use of the articles per se, but must take into account the relevant linguistic, social and cognitive factors.

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1. For criticisms and reviews of Maratsos, see Garton (1976) Warden (1977), and Karmiloff-Smith (1976).

Warden (1973, 1975 and 1976) independently devised his own theoretical classification of the uses of the articles, which basically differs only in terminology from the classification used by Brown and Maratsos. He states that the articles themselves have no referent, they simply help to point to the referent of the particular Noun Phrase under consideration. The use and interpretation of the articles are highly dependent on various cognitive factors such as the speaker's knowledge of the referent, the speaker's referential intention, and the speaker's awareness of the listener's knowledge of the referent.

For Warden, the definite article embodies the concept of specificity and can be used:

1. when the referent is unique (contextually, situationally, verbally).
2. when the referent is specified by its saliency, or made salient by the speaker's use of an ostensive gesture such as a point.
3. when the referent is being talked about anaphorically (having been introduced into discourse by the use of the indefinite article).
4. when the referent is generic, meaning the whole, entire class, all the members taken en bloc.

On the other hand, the indefinite article can be used:

1. for identification in the present context, where the referent is specific enough to both parties engaged in discourse, and subsequent references are made with anaphoric the.
2. for nominatives in sentences of the structure "It's a ....; there's a....", where 'it's' and 'there's' in the proposition assume some degree of prior identification of the referent on the part of the listener, together with the copula and the indefinite NP, combined to mean some one.
3. for indication of some (as yet unspecified) referent. This indefinite use of a means that neither the speaker nor the listener is being

asked to pay attention to any specific referent, e.g. "Please pass me a pencil" indicates that the speaker wishes to take possession of some implement with which to write but which must be a pencil but he does not care which pencil.

4. for generics, meaning any member of the specified class taken at random. Both the and a can further be used to discuss hypothetical entities.

Warden conducted some simple and sound investigations into (mainly) four year olds' production and comprehension of the articles in various tasks. Using adults (students) and older children for comparison, he found that generally children as young as three years of age are aware of the semantic distinction between the articles. Although this does not show that children can act according to the distinction made semantically, it does show that they are aware of the articles as syntactic markers of nouns.

Warden's studies investigated aspects of the articles such as anaphoric definites, correction by the child of the Experimenter's erroneous references with the articles, the importance of the saliency of an object on the child's identification of it (in both verbal and visual contexts), and the effect of the social context on the child's production of the articles.

One of the uses of the indefinite article is for the identification of an object previously unknown to a listener. This object then enters the shared realm of discourse and subsequent reference to it by either party can be made with the definite article. Warden tested this notion with a story-telling technique. Pictorially represented stories, with a small number of recurring characters, were presented to 3, 5, 7 and 9 year old children and to adults. The cards illustrating the story were presented to each subject face down. Each subject was required to tell the story to a

listener who could not see the cards, for subsequent repetition by this listener (although this was conducted, the stories repeated were not included in any analysis). Each story contained three animate and one inanimate references. Each referent appeared at least once and at least two recurred in one other picture. Three pictures were used per story. Warden intended each subject to mention each referent once and the two recurring referents a second time. The referring expressions used by the subjects were scored as indefinite or definite, and as first or second mention of the referent.

The obtained results are tabulated below as percentages:

Table 4: Definite and indefinite referring expressions in the story-telling task (from Warden, 1976, p. 109).

	First mention		Second mention	
	Definite	Indefinite	Definite	Indefinite
Adults	0	100	100	0
9 year olds	18	82	100	0
7 year olds	39	61	100	0
5 year olds	38	62	90	10
3 year olds	54	46	92	8

In his discussion of these results, Warden points out that adults always used indefinite identifying expressions appropriately (first mention of a referent), and also, developmentally, there was little age difference in the use of the definite article for second mention of a referent. Examination of the number of indefinite expressions used for the introduction of a referent revealed significant differences between most of the age groups compared. However, a further qualitative analysis indicated that the younger children (3 and 5 year olds) were not introducing a referent with the indefinite article, but were in fact naming the objects.

The conclusions drawn from this study (and others like it) were:

1) children used many inappropriate definite references,

2) younger children used a for naming, but the when the referent was in a full verbal context (i.e. a full descriptive sentence). He therefore states: "They (i.e. the younger children) fail to recognise the need for an indefinite expression when introducing a referent for the first time in discourse; consequently they also fail to recognise the constraints on the use of the definite article, namely that its use indicates an already-identified referent" (p. 110). This failure to identify referents is deemed to be due to the child's egocentrism, an inability to take the listener's point of view. Although this egocentrism may only be partial, since some indefinite expressions for identification were produced, children have difficulties realising that indefinite can be used for (a) identification, and (b) the indication of an indefinite (any) referent. The child must become aware of the audience's point of view for the appropriate use of the former function of a. By nine years of age, this has been achieved, and the child has mastered the uses of the indefinite article.

Warden concludes that the children were in general egocentric in a certain communicative context, and this inability was reflected linguistically in an inappropriate choice of referring expression up until around the age of 6 years. This argument meets with problems as when children used demonstratives they were sensitive to the contextual cues necessary for their usage before these cues became apparent from article use. The children only used demonstratives when the audience could see the visual cues about which the children were talking. So it appears that the rules governing appropriate contextual use of the demonstratives are learned before the rules for the articles. This then is attributed by Warden to

the difficulty the child encounters in the negative ideas contained in the indefinite article. From an early age, the child seems able to use the indefinite article for naming and when talking about or describing a referent, where a = any. But the child seems unable to use the indefinite when the referent is familiar to himself and not his listener.

After the experimental aspect of the thesis, Warden examines the spontaneous speech of two children and the mother of one of them. He looks for occurrences of the articles in their speech and categorises them according to his classification system. He then charts the developmental changes that are seen with the functions of the articles, the child first using the definite article only for present, concrete and visible referents, and a is used only in cases of naming a referent either visible or already known. The child then develops from these uses more sophisticated and abstract uses of the articles (in terms of adult usage), but attainment of adult functions does not seem to be complete until the child is about 9 years old. The development is briefly summarised in Table 5 below:

Table 5: Article acquisition (after Warden, 1973).

At age 2 years:	Indefinite article used in nominative expressions. Definite and indefinite references can be distinguished in terms of the child's own experience. Indefinite also used for hypothetical or unspecified referents. Definite used for present, concrete and visible referents. Pronominal references made when the referent is specific to child himself.
At 4-5 years:	Pronominal the + N found. Child has hearer more in mind when communicating. Inconsistent identifying a expressions.
At 5-7 years:	Little changes, children still fail to identify referents appropriately - child fails to take viewpoint of hearer when introducing referent known only to speaker himself, and thus seems egocentric in his usage of the definite article where the introductory a is appropriate.
At age 9 years:	Article usage approximates adult.

Warden explains the egocentrism on the child's part (the inability to defer to a presumed lack of knowledge on the part of the hearer) by stating that the input to the child from adult speech uses the indefinite article for identification only in restricted contexts. By this he means that an indefinite identifying expression is only obligatory when a referent cannot otherwise be identified by contextual or situational saliency. In mother-child interactive speech, a lot of the referents are known to both parties either in the specific context or by past experience. So the child is not likely to hear identifying indefinite expressions except in optional situations, where the definite article for identification is also permissible. The dual function of the indefinite article raises important questions that still have to be answered. This distinction is similar to the one made by Maratsos, only couched in different terms. It seems that young children show an inability to take the hearer's (lack of) knowledge into account when identifying a referent, i.e. the referent is speaker-specific and listener-non-specific, to put it in Maratsos' terms. Otherwise the child can master the use of the definite article when both speaker and hearer are attending to referents that are in some way unique, specified already, or salient. When the referent is non-specific to both speaker and hearer, the child can correctly use the indefinite article - Maratsos goes some way to explaining this, which Warden does not.

On the whole, the two theses are very similar - the experimental techniques were also similar, except that Warden's were much simpler. The conclusions reached by Brown, Maratsos and Warden all indicate that there is partial egocentrism on the part of the child, as he is unable, when a referent is specific to himself, to take the hearer's knowledge, or lack of it, into account. He is unable to defer to the hearer's presumed lack of knowledge and rather naively assumes that the hearer must also know the referent. This is in contrast to the child's ability to use the indefinite article to

refer to the notion of any member of a class, when the referent is non-specific to both members of the dyad. It is only when the child has to introduce or identify a new referent for the hearer that he has problems. It would be interesting therefore to examine the egocentric definite article used in place of the correct indefinite in such identifying expressions as compared with other uses of the indefinite for naming and talking about any member of a class.

The one major difference between all three investigators is concerned with the use of the indefinite article for nomination, or naming. Brown looks at this in terms of the specificity of the referent to both speaker and hearer, and while the reference is made in the indefinite, both speaker and hearer are attending to the same thing, hence the reference should be made in the definite. As the indefinite is used, then naming should fall into the category of speaker-specific and hearer non-specific, which it does not. This is because the object does not yet exist by name for the hearer. So the speaker thinks it necessary to name the object, although it is specific enough for the hearer. Maratsos takes up this point and believes that in naming (i.e. attributing a characteristic to an object, in this case, its name), one is concerned with placing the object in relation to the rest of the named class, without creating a new unique referent. This is particularly true when an adult is naming something for a child - he will say "... a bear" (usually with a point), but is concerned with a non-particular member of the class of bears.

Maratsos also believes that there are two sorts of nominatives - definite and indefinite. He conceives of the definite nominative being near to the generic use of the - the presupposing knowledge of the referent on the part of the hearer (like Brown), and the indefinite (used in cases of parents naming to children) is used when the referent is specific to both parties, but no name exists for the referent on the part of the hearer. This explains

Brown's ideas more clearly taking into account specificity of the referent to both speaker and hearer.

Finally, Warden looks at the problem of nomination in purely syntactic terms - naming is seen with a structure of the sort, "That's a ...", "This is a ...", "It's a ...", "There's a ...". He assumes that by using this construction, some degree of knowledge of the referent exists prior to this discourse under consideration, hence the use of the definites (that, there, etc.), and the speaker is merely seeking to name this object so uses this type of sentential construction, plus the indefinite article. Warden does not mention naming by adults to children here, but later when studying the ontogenesis of articles in spontaneous speech, the expressions seen as naming are those with this kind of construction.

All three viewpoints are reconcilable into one broad idea about naming. The definite article (perhaps in the type of construction that Warden sees as being naming) occurs when both speaker and hearer have prior knowledge of the referent and it is specific to both. The indefinite a is used when the referent is not specific to the hearer at that point in time (either ontogenetically or in the situation of discourse) and the speaker feels he has to name that referent and place it in relation to other class members. The use of the demonstratives in such a sentential construction as discussed above indicates that the referent is known prior to naming and in using the indefinite article, the child seeks to place that object in a class, while referring only to any, non-specific member.

In relation to the use of the definite article in such 'naming' statements, Hawkins (1978) states:

> What determines .... whether a definite article can be used is whether the object actually occurs in the surroundings within which it belongs, or whether it has been extracted from these surroundings.....
>
> (p. 106)

An example of the former is given in the form of a driving instructor teaching a (very raw) trainee about the mechanisms of the car: "This is the ignition key, that is the gear lever, and that is the clutch" (example 3:28; p.105). But the indefinite article would be used if these same objects were introduced as separate parts, in a garage for example, where they would be held up to the listener and introduced. This notion concurs with that proposed above, and is taken up again in the experimental chapters.

b) The functional approach

Bresson (1974) looked at the child's developing ('genetic') linguistic competence, a development with an invariant order across children in a given linguistic community. Bresson believes in assessing observable linguistic behaviour in terms of the relationship between the spoken word and what is understood. In acquisition, the total linguistic behaviour must constitute a syntactic and semantic system, which links to the linguistic behaviour of adults. Underlying the linguistic systems are semantic sub-systems, which in turn must correspond to cognitive necessities, must be marked in language, and must be universal. The acquisition of the article system in French provides a very good example of such a system, which can be compared between adults and children for performance and competence differences, and cross-linguistically. In French, the set of articles fulfills different functions:

1. the value of a shifter, in which case a demonstrative can be substituted, when it points to something in the extralinguistic environment.
2. the function of an actualiser, and of (logically) connecting the variable.
3. the value of a quantifier - both relative and absolute quantifiers.
4. the function of a classifier (male/female; singular/plural).
5. generic use.

Bresson studied the acquisition of these functions in children between the ages of 4 and 6, and describes the experimental procedure used. The child had to:

a) describe manipulations by the Experimenter of sets of animals, made up of homogeneous and heterogeneous groups, to a doll who could not see the animals,

b) answer questions relating to a group, a single animal or a unique (in a group) about 'Who is leaving?' as the animal was displaced.

These experiments were designed to test comprehension and production of all the major functions of the articles listed above. Bresson found that children between 4 and 6 years were able to master the forms of the article, but were unable to use them whenever the situation indicated a relative quantifier. The children were unable to differentially mark predicates with the same subject and used the definite article in both cases, implying the two predicates referred to the same subject. This occurred particularly with the plural, as in the singular un can mean a or one, but even here the definite was predominant as the situations were designed such that un referred to any, unmarked member of a group. The children were thus able to use the opposition some/the in the plural, and this suggests the child is here still at the level of simple determination by context or anaphora. This inability, it is suggested, is related to some cognitive incapacity, mainly to the difficulties found between 4 and 6 years in adequately performing Piagetian tasks on quantification of inclusion, where 'any one' or 'part of a collection' must be represented cognitively and non-linguistically, and linguistic representation of these depends on prior cognitive abilities.

Brown, Maratsos, Warden and Bresson are the principle investigators who have looked at the problems of the child's referential use of the articles.

However, recently, Annette Karmiloff-Smith (1976, 1979) has considered the plurifunctionality of the determiners in child language using French-speaking children. She looks at how the various functions of the determiners (articles, demonstratives, etc.)develop in young children. The functions do not develop consecutively, but there is an interplay between the phonological, syntactic and semantic functions, and each function may conflict with another. At any given time there may be predominance of one or other function. Karmiloff-Smith believes language acquisition strategies are 'input dependent', i.e. dependent on not only the observable utterance but also the structural context and the linguistic functions in each context.

There is a broad distinction to be made between the '<u>descriptor</u>' and '<u>determinor</u>'[1] functions of demonstratives, articles, possessives and modifiers. The descriptor function provides information about a certain referent - it does enable the hearer to pick out the referent, but it <u>describes</u> the referent under consideration. The determinor function however defines the relationship between the referent and its context, it situates the referent under current focus of attention <u>within the context</u>. The child, it is hypothesised, proceeds from using the descriptor function to the determinor function, paralleled by a development of reliance on extralinguistic factors to clarify reference to reliance on intralinguistic factors. Each determiner also has a primary assertive function plus secondary functions - for example, the primary function of the indefinite article (in French = un(e)) is to mark <u>naming</u> or non-specific reference, the secondary function is numerical, tc which are added para-linguistic markers such as stress. Of all the possible functions of a given morpheme, one may be primary in one situation and the others secondary - the plurifunctionality is potentially heterarchical.

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1. Determinor is used to refer to the function, whereas determiner refers to the category.

The experimental work of Karmiloff-Smith (1976, 1979) comprises a vast study of many facets of determination, grouping the studies into two broad kinds - deictic, exophoric and quantifier functions, and anaphoric functions - both for production and comprehension. (She also looked at gender marking functions of the determiners, but these are not applicable in English.) The materials used for the experiments typically involved the experimenter manipulating models and asking the children questions to which they had to respond verbally. For example, in one experiment, conducted developmentally, French-speaking children of between 3 and 11 years were asked to describe two successive actions on two separate objects. The experiment was designed to analyse how children organise the various possibilities for expressing anaphoric reference linguistically. Three contexts were used - one with three different objects, one with three similar, but differently coloured, objects, and one with three identical objects. A girl-doll and a boy-doll were the 'actors' manipulated by the experimenter. One doll performed an action on an object in one of the contexts, and the other doll then performed the same action on the same object or on another object. The study was conducted to examine the determiners used by children of different ages to the second action performed in the three different contexts.

The responses to the first and second actions were tabulated according to their adequacy in the different contexts, and Karmiloff-Smith looked mainly at the determiners used when reference was being made to the second action performed on the same or another object. The results are tabulated in 11 tables (Tables 16 - 26, Karmiloff-Smith, 1979), but as an illustrative example, responses to the second action on the same class member of identical objects will be tabulated in Table 5.

This table shows that the use of the anaphoric definite article is

Table 5 : Identical objects: Adequate referring expressions for second actions to the same object (from Karmiloff-Smith, 1979, Table 19, p.130

Age group	Definite article + localiser(%)	Anaphoric definite article(%)	Definite article + Re-verb(%)	Definite article + 'same'(%)	Anaphoric pronoun(%)
4.0-4.11	5	0	0	0	21
5.0-5.11	0	0	0	17	21
6.0-6.11	8	0	17	12	11
7.0-7.11	12	0	6	34	6
8.0-8.11	14	2	6	31	10
9.0-9.11	18	0	4	43	9
10.0-10.11	37	16	2	17	10

entirely absent from most age groups, while the use of the anaphoric pronoun is also fairly low. Karmiloff-Smith continues to look at the function of the anaphoric pronouns used. Many of the pronouns were spatial ones, and according to Karmiloff-Smith, "there was definitely a tendency to use a spatial reference for identical contexts" (p.131).

The other contexts were treated in a similar qualitative way, with both adequate and inadequate referring expressions being considered. Karmiloff-Smith concludes that the definite article functions as a deictic (and thus she supports Lyons, 1975, 1977), and is not used to link referents intralinguistically. This experiment thus supports the hypothesis that the definite article functions deictically, and in general, Karmiloff-Smith concludes that there is a tendency for children of all ages to make definite reference where at all possible.

Karmiloff-Snith finds that acquisition appears earlier in comprehension than in production, though the trend of acquisition is similar. Children do seem to acquire the descriptor functions before determinor functions. She also considers the implications of her work for Piagetian research. She had used the Genevan tool of clinical investigation for trying to get at epilinguistic awareness of the functions of the determiners, and this further aspect of Karmiloff-Smith's study provided

clues to how the child was making distinctions in speech. This also enabled linking the linguistic development to the more general cognitive development of the child. A broad developmental hypothesis is postulated, hopefully with enough generality to cover not only the linguistic sphere, but other domains as well.

The results from the experiments indicate that in the case of the articles, one difference is made very early on - the indefinite article has a naming function and the definite article has a deictic function - the descriptor function. When the child is aged between 5 and 7 years, two more functions are added - the numerical function for the indefinite article and the exophoric function for the definite article. The initial descriptor function develops into the determinor function through two channels - 1) by overmarking, and 2) by exophoric reference - viz. situating the referent into some characteristics of the current context. At this age, as new functions get added, the child initially uses either separate morphemes or creates agrammatical forms. Children are trying to express the determinor function, distinguishing it from the descriptor function by over-marking and over-determination. It is not until children are aged about 8 years that they consistently use the determinor function correctly. The plurifunctional morpheme is first felt to be several homonyms before it can become one word with several functions. The older child can cope with the simultaneous functions of a morpheme.

A tentative model is then presented to explain the acquisition, incorporating the evidence presented in the thesis, of how the plurifunctionality of determiners evolves, and how the child moves from the descriptor function through to the determinor function of these words.

Seeking a consistent input pattern is a useful heuristic for coping not only with the linguistic environment, but with physical, conceptual and

perceptual worlds. The child is not hypothesis testing, but seeking positive examples of the function presenting the most consistent pattern (e.g. the naming function of the indefinite article). As new functions become consolidated, the original functions do not disappear, but their scope and importance may change. If a procedure does seem to disappear, it has most probably been integrated into a broader conceptual framework. This model was partly inspired by thinkers in Artificial Intelligence, and fits in with the Piagetian epistemological processes by its dynamic nature. Although conceptual processes are important, the procedural aspect is even more so. Imposing patterns and regularities on the environment allows the child to find counterexamples and seek new patterns. With development there appears to be more interplay between procedures, and morphemes attain plurifunctional status through patterns not only in the input but in the child's own approaches to the linguistic input.

In short, this extensive research programme seeks adequately to cover a large area of child language development and provides a specific hypothesised development of the determiners as well as seeking to provide a very general model of development in all spheres. As the work was conducted in French, it remains to be found whether the same linguistic phenomena are apparent in the acquisition of the determiners in English and whether the same explanations of behaviour will suffice.

Finally, a consideration is made of Dunlea's (1978) brief naturalistic study of article acquisition, using Hawkin's (1978) model. This study analysed a corpus of utterances (from an unspecified number of children from an unspecified age range) to look at the determiners (in particular the articles) used in terms of the functions proposed by Hawkins.

The functions of the definite article are:

1. anaphoric reference
2. immediate situation reference (visible; not visible)

3. larger situation reference (e.g.the king)

4. introduction in visible situation

   e.g.in a car - the steering wheel

   not in a car - a steering wheel

5. associative reference (= entailment)

6. first mention with referent establishing modifiers (this includes the definite article by definition, and the use of the + modifier, e.g.I like the colour green).

The definite article must refer to all objects satisfying the referring description in a pragmatically defined set of objects ("Inclusive").

The functions of the demonstrative that are:

1. anaphoric reference

2. visible immediate situation reference.

The demonstrative calls attention to an object either previously known or visible in the current context. That is, there is a one-to-one identifying principle which does not necessarily hold for the use of the definite article. In the latter case, the hearer must identify a set within which the referent is understood to exist.

Finally, the indefinite article refers to only some of the potential referents of the expression ("Exclusive").

Dunlea believes that these functions are more thorough than previously used analyses for the study of the acquisition of the articles. However the conclusions drawn are not too different from those found by Warden (1973) in his naturalistic study. Certain functions,e.g. the anaphoric function of the definite article, were missing from the child's early speech. The other functions found are described in terms of "the strategies inherent in

the article usage types" (p.86). In total, all Dunlea declares is that complex uses of the determiners are missing from young children's speech, while emphasising the need to study the articles by considering a broad range of factors.

1:5 Recent psychological views of demonstrative acquisition

a) The contrastive approach

Eve Clark (1978) discusses the 'Natural history of deixis in language acquisition' and looks at the active process of language learning. Two major themes emerge - that of continuity in language acquisition, and the strategies derived by the child during hypothesis formation while learning word meaning. Deictic terms in English are considered. These words point to things in relation to the participants in discourse, and help anchor utterances in the context in which they are produced. There are terms for Person deixis, I and you, for deixis of Person plus Place, (relative location), here and there, for Person plus Place plus Object, this and that, and finally, for Person plus Place plus Object plus Movement, come and go. The notion of speaker is central to the use of these terms, and in their simplest uses, I refers to the speaker, and you to the other participant, the person being addressed. The other pairs are more complex, but a contrast must be made by the speaker, using the self as central. Clark assumes the acquisition of the pairs of contrasts to be as in the order they are discussed above.

There are other things, as well as the centrality of the speaker, to be considered when looking at deixis, such as shifting reference which is involved in the use of all deictic terms as, for example, the speaker always refers to the self with I and to the other with you. Also considered are shifting boundaries which are involved in the use of here and there, and this and that. Here can refer to the spot the speaker is standing on, the room where the speaker is, or the city, country, etc. where the speaker is at present. Because of the shifting boundary, anything can be included in

here, but what is included in there is restricted - it cannot be the place where the speaker is. The same notion applies to the use of this and that. Deixis is also related to definite reference, and the requirements are the same for usage. These include ideas of existence (object permanence), individuation (independent existence of objects) and class membership.

Clark then looks at the origins of the different forms of deictic terms, using both anedotal and experimental evidence, and postulates strategies used by the children in working out the contrast between the pairs of deictic terms (see Clark and Sengul, 1978). The first stage in the acquisition process is one of No Contrast, and here the child will use only one of the pair to refer to both, e.g. here to mean both here and there, near and far location. The child then progresses to a stage of Partial Contrast, when the other contrast of the deictic pair is learned, but the hypotheses formed by the child as to the nature of the contrast are often incorrect or incomplete. Finally, Full (Adult) Contrast is attained and the child has full mastery of the contrast between the terms in the pair. These stages hold for the acquisition of all the deictic pairs.

Clark tries to show how children progressively learn more details about language by continually forming hypotheses about language and by realising that their strategies for using words depend on their hypotheses about the meaning of the words. The strategies are formed through the hypotheses and become modified as the hypotheses become altered. The evidence presented indicates that in acquiring deictic terms, the child must realise the centrality of the speaker, child and goal in his hypothesis formation. Also given prominence are the different

routes taken by children in attaining adult usage. Clark, in her paper, is trying to show how deictic words and their acquisition have broad implications for other studies, and how strategies are modified in the light of children forming hypotheses about the word. Children start out with simple methods, such as gesture, to indicate location, and progress from such primitive and imprecise methods of indicating direction and place, to more sophisticated and accurate adult ones.

b) The functional approach

Wales (1978), discussing 'language and context', examines the use and understanding of deictic expressions, including data from naturalistic speech between mothers and their children. In the section on "Methods of Study", Wales outlines the experimental approach to the study of deictic terms. This is the investigative method Clark and Sengul (1978) used in their study of this and that. However, instead of, as Clark and Sengul did, examining deictic terms on their own (i.e. the contrast between this and that, or between here and there), Wales (1978, 1979) incorporated two contrasts, e.g. put this X there; put that Y here, etc., into the instructions in the task. He found that mixed polarity in the instruction (i.e. this plus there, close proximity plus distance) aided the child's comprehension. Specifically young children learn here/there before this/that, and in the above instructions, comprehension is made easier because one member in each pair refers to a location closer to the speaker. Mixing the polarity seems to force the child to pay attention to the words and the intended contrast of proximity to (or distance from) the speaker. The children performed better when this was presented with there (rather than here), or here with that (rather than this). There were more 'wrong object (location)' responses than 'wrong location' responses, indicating that here and there were easier than this and

that.

However, in these experiments (as in all experiments on the understanding of deictic expressions), no gestural support was given to the linguistic expressions. Typically, in adults, gestures accompany such expressions and if this is the case, then it is hardly surprising that young children take time to interpret and understand the deictic terms when gestural support is absent. However, in order to make some assessment of young children's comprehension of the linguistic terms, the nonlinguistic gestural support must be eliminated in the experimental situation.

Wales (1978, 1979) also seeks to investigate the relationship (if any) between the use of deictic expressions and gestures. Samples of language from mother-child interactions were studied. All deictic expressions from 10 mother-infant pairs were coded, together with noting down the kinds of gesture at the time of the utterance. The results are shown in Tables 6 and 7 below:

Table 6 : Mother-child interactions - % number of times different deictic expressions are used (from Wales, 1978, Table 1, p.72).

		this	that	here	there	the	a
Mothers	Total 2788						
	4 year old	8.1	53.4	8.5	30.0	-	-
	6 year old	3.9	25.8	4.1	14.5	31.9	19.8
Children	Total 2788						
	4 year old	15.2	32.4	22.5	29.9	-	-
	6 year old	9.8	20.9	14.5	19.4	17.5	17.8

Table 7 : Mother-child interactions - gestural concomitants of expressions in Table 6 (from Wales, 1978, Table 2, p.72).

Categories:	Mothers %	Children %
Pointing	7.5	13.1
Handling - speaker throughout[1.]	18.2	40.4
Speaker-putting down	3.2	4.7
Listener throughout	16.7	2.8
Listener-putting down	2.2	0.5
After putting down (speaker)	0.8	0.6
Picking up	8.7	11.3
No handling	21.0	17.4
No concrete referent present	21.7	9.2

1. This indicates that the object was held by the speaker for the duration of the utterance.

These tables show quite clearly that gestures do indeed accompany the uses of deictic expressions and the children predominantly handle objects while linguistically indicating them. The implications of this study are considered in more detail in Chapter 4, but meanwhile, Wales (1978, pp.72-73) concludes:

> It therefore..... seems ..... that one of the important ways in which children learn to relate the linguistic content of referring expressions to the appropriate physical domain for those referring expressions, is (i) through the juxtaposition of gesture in the spatial and temporal physical domain, and (ii) the associated linguistic use of those particular kinds of expressions which mark the fact that when they are used, the person who is speaking is in fact talking about features of the spatial and temporal domain of the utterance.

1:6 Summary of psychological investigations of the determiners

The studies of Brown (1973), Maratsos (1976), Warden (1973, 1975), Bresson (1974) and Karmiloff-Smith (1976, 1979) on the articles and their developing functions and those by Karmiloff-Smith (q.v.), Clark (1978) and Wales (1978, 1979) on the demonstratives indicate that as the child gets older, he can take into account various social factors in language use. For the articles, it seems that the definite and indefinite are differentiated from each other at quite an early age, though the functions of each are not fully acquired immediately, but require knowledge of the listener and contextual factors before correct usage is attained. The authors have all classified the functions of the articles differently, some (e.g. Brown) more detailed than others. Basically, the functions are all the same, but how and in which order they are acquired is still a problem, tackled only by Warden and Karmiloff-Smith. The acquisition of the demonstratives seems to be at an earlier age than the articles, and also requires spatio-temporal awareness, plus knowledge of the listener. The demonstratives operate on a more concrete level, and are thus perhaps easier for the child to understand and to communicate. Only through further research will the relationship between the determiners and their functions be established. Having research in both English and French results in a fuller picture of what is occurring in adult language and article usage, but developmentally, things are only very slowly becoming clear. Several things are already well documented and virtually indisputable, such as the early naming function of the indefinite article, and the use of the definite article when the speaker is referring to an object in the focus of joint attention. Whether this is the child appreciating the social and contextual constraints of the situation, or whether the definite

article is simply acting as a weak deictic adjective is debatable. The second explanation seems more correct, perhaps including an elementary appreciation of the former. From these two functions, the developmental hypotheses all diverge, and most investigators are vague as to how each function is attained and how the child comes to appreciate social constraints on language use. Karmiloff-Smith goes some way to explaining these aspects of determiner acquisition, but because her study was conducted in French, some confirmation (or disconfirmation) of her results with English speaking children seems necessary. Certainly the functions of the articles and other determiners in adult speech are not all the same in both languages, but there is considerable overlap.

Having reviewed the major literature on the functions of the articles and studies of the acquisition if the articles, it is clear that there is no single theory encompassing both the contrastive and the functional aspects. Brown, Maratsos and Warden draw heavily on the grammarians when formulating their models of article functions, and as such, pay little heed to the semantic functions during acquisition. Some attempt to redress this balance has been made by Hawkins (1978), but his theory adds nothing new to a developmental model (cf. Dunlea, 1978). No attempt was made to analyse the functions of the articles in early language in terms of the specific notions Hawkins outlines, particularly the inclusive-exclusive distinction.

Karmiloff-Smith (1979) draws on both the grammarians and the semantic theorists for her model of determiner acquisition. She considers the articles not as a contrastive system but as part of a larger system of determination, a theoretical and empirical stance adopted by other

investigators (e.g. Wales, Hawkins, Lyons).

The present line of research in this thesis commenced, historically, with Lyons (1975). Further developments came clear from the work in Geneva by Karmiloff-Smith. From the previous theoretical and empirical investigations, the present investigation proposes starting from the notion of a total system of determination, and thence to establish what determiners young children can and do use in experimental situations and what their functions might be. Five issues, posed as question below, provide the bases for the research to be conducted. These issues arise from an examination of previous attempts to study the acquisition of the articles, the demonstratives and the other determiners as a system of language use in English. The five questions to be examined are:

1. Does the child use and understand the article system as one of a contrast between the definite and indefinite articles, or are the two separate forms, but part of one larger system?

2. What do the definite and indefinite articles mean to the young child? How does he use the two words? Are they context-dependent?

3. Can the child use the articles in a manner related to the uses distinguished by adult speakers? If the child's usage does not approximate adult usage, how does it deviate? How does the child work out the distinctions between the articles?

4. Can the child understand adult contrast between the articles? If not, what is he doing when he hears one or other article, or both, used in certain contexts?

5. What are the precursors to adult usage and understanding of the articles? Are the demonstratives and the contrast between them (and perhaps other determiners such as the locatives) a prerequisite to the acquisition (i.e. to the appreciation of correct use and understanding) of the articles, and in particular the definite article?

These five questions are not independent issues, but are directed towards an integrated theory of how the young child uses and understands the article system, and the following experiments were designed to systematically evaluate the issues raised. These issues arise from

the discussion of research in the area, but further consideration must be given to the theoretical position to be taken in this study of article use and comprehension in young children. Through the experimental tasks involving the production or elicitation of the determiners, it is intended to show that indeed the definite and indefinite articles have different functions, functions which are context-dependent. It will be seen that the two article forms are not part of a contrastive system of determination and the links between the two are rather tenuous, particularly at the age of three years. Contextual influences (in the form of linguistic and perceptual inputs together with social factors) all interact to provide the child with clues about the nature of the task. The materials used, the context of the experiment, the aims of the investigator and what is actually occurring in the procedure all appear to influence the results obtained. Although the experimental approach was adopted in this thesis, the tasks were made as free as possible from constraints and the testing situations were made to resemble situations where the articles might be used naturally. The experimental approach however does not mirror the natural situations of language as it is a fairly constrained and contrived set-up. Also, there is an experimenter, whose very presence influences the way the child acts and reacts in the experimental situation. The child's behaviour may therefore be modified or altered and this aspect of testing must always be borne in mind when analysing data obtained by semi-artificial means.

Another major consideration is that the child's comprehension abilities and his production abilities may not correspond. Could this be due to superior comprehension abilities, according to the thesis that comprehension preceds production, or is it simply an artefact of using different techniques to study production and understanding?

One cannot use the same task for two purposes, but somehow parallel developments must be studied systematically in order to get a clear picture of exactly what is happening. Examination of both productive and comprehension abilities goes some way to provide an overall view, albeit within similarly constrained situations, and a clear picture of what the abilities of the three year old child actually are should emerge.

Chapter 2 Preliminary investigations - Comprehension studies.

2:1 Introduction

A flexible approach is clearly needed to the study of the acquisition of the articles, although a broad theoretical framework has been established. The first part of the following investigation will concentrate on the young child's understanding of the articles as used and understood by adult speakers of English. Yong children are undoubtedly heading towards adult usage of the article forms, but how do they achieve this? Are the articles used in the same way by young children, i.e. are the functions the same for the child as they are for the adult? On the other hand, one must judge children's performance on comprehension tasks not as a deviation from, or as a match with, expected adult use and understanding, but as the ability of the child within a given situation. Can the child understand adult use of the articles, usage involving certain of the functions of the articles? If not, what aspects of the situation are guiding the child to his understanding of the adult functions?

Briefly, the uses and functions of the articles in adult speech are shown in Table 8. While the uses are broadly defined, the functions encompass the major notions discussed in Chapter 1. These uses and functions are intended to be theoretical assumptions upon which the comprehension experiments (and as shall be seen, the production experiments to a certain extent) are based. The assumptions may not necessarily be the ones on which the child's article system is based. However, these assumptions are derived from adult based notions of usage, so it is reasonable to suggest that they

Table 8 : Uses and functions of the articles.

Uses	Functions
THE	
1. Deictic	To point to a salient object, or to make an object in context salient.
2. Exophoric (Extralinguistic)	To tie together the linguistic and the nonlinguistic contexts, typically by the use of a descriptive sentence.
3. Anaphoric (Intralinguistic)	To mention an object or event that has been previously linguistically identified.
A	
1. Naming	To specify the name of an object where a specific object is intended.
2. Indefinite (Generic)	To refer to <u>any</u> member of a class of objects.
3. Introductory	To identify a particular object for present discourse purposes. (Subsequent mention is then made with the anaphoric use of the definite article.)

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are the assumptions with which adults organise their usage of the articles. In other words, the functions that are performed by the different uses of the two article forms are sufficiently broad to be valid assumptions (1) for adult use of the articles in English, and (2) on which to base experiments on comprehension in young children.

Comprehension studies invariably depart from some theoretical notion - for example, there could be a contrast between the articles as a system. In order to see if children (or adults) organise the articles into a contrastive system, an experiment is devised whereby

one article form (the) is contrasted with the other article form (a). The linguistic contrast is considered in one situation where the cognitive contrast is presented via a visual array, e.g. a unique object (requiring reference with the) vs. several identical objects (any one individual member requiring reference with a). The child may apparently contrast the articles on the basis of little or no linguistic knowledge at all. A little knowledge, such as the use of the definite article to refer to unique objects, might enable elicitation of an apparent contrast. The other term, a, by exclusion, does not refer to unique objects. Thus, experiment-elicited contrasts can be devised, but this perhaps does not truly reflect the child's capabilities. 'Correct' experimental understanding does not imply correct understanding in normal language use, not does 'correct' experimental understanding ensure correct production (be it experimental or naturalistic).

When the articles are contrasted in normal speech, the two forms are typically stressed (e.g. that's not a cat, that's the cat from next door), or emphasised linguistically (e.g. the same dog, another cat). However, the two forms can occur without any of the above emphasisers although they rarely do. But this is precisely what happens in experiments. It is not the major functions of the articles to encode such strong contrasts as,say, Brown (1973) or Maratsos (1976) would have us believe. However, psychological experimentation customarily uses forms without, for example, their linguistic emphasisers, or, in the case of the demonstratives, without the customary accompanying nonlinguistic pointing gestures. So the experiments on comprehension of the articles do not really study the forms as used in their normal functions, which would require the additional linguistic or nonlinguistic markers, but

instead study their theoretical functions. Of course it can be argued that part of one's competence in language includes the ability to use and understand language both in experimental and everyday situations. And indeed it is. But one must be wary of generalising any experimentally derived comprehension abilities to either productive abilities or to the natural communicative situation.

Having stated these problems, the comprehension experiments that were designed did rely on making theoretical assumptions about the articles. And in order to see if the two forms were understood, one form was linguistically contrasted with the other. The cognitive contrast was also available via an array, with, for example, a single unique object present together with several identical objects different from the unique object. So these comprehension experiments were designed with the aim of seeking the young child's understanding of some of the functions of the articles. And, as one cannot experiment without some hypothesis (either explicitly or implicitly stated), the assumptions which were made when drawing up Table 8 were held throughout. However, the performance of the child is not regarded as a match with or a deviation from assumed adult performance, but as the performance or the ability of the child in that given situation.

The experimentation was conducted in English with three year old children. Children of this age have been using the articles in their spontaneous speech for six to 12 months (Brown, 1973; Warden, 1973). Other experimental investigations (e.g. Maratsos, 1976) have been conducted with children of this age, while Karmiloff-Smith (1976, 1979) conducted a full developmental study commencing

with three year old children. The experimental manipulations were therefore undertaken with similarly aged children throughout (presumably of comparable linguistic ability since the subjects were drawn from a homogeneous population) to see how these variables affect subsequent production and comprehension. In the comprehension tasks, one can look at what adult uses of the articles and demonstratives the three year old child understands, and if he does not understand the specific functions intended, on what does he base his response? The production experiments enable making comparisons of the uses and functions elicited between experiments with children of the same age. This is instead of the more usual approach of establishing a developmental framework. Such a framework, using data from children of different ages, typically proposes the developing and changing forms and functions of some aspect of language. However, in the following experiments, only three year olds served as subjects, enabling a comprehensive picture of the abilities of the three year old to be drawn up.

The children were selected from records maintained in the Department of Experimental Psychology, Oxford University, the names of the children having been culled by postcard recruitment shortly after the birth of the child.[1] Age and availability were the sole criteria in the selection of subjects, although all were virtually preselected in terms of other criteria such as social class,

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1. The author would like to express her gratitude to Mrs Charlotte Stroud for her help in contacting potential subjects.

due to the method of recruitment. The children were tested individually in the child study laboratory in the Department of Experimental Psychology, with the mother present.[1.] A five to ten minute period of familiarisation always preceded any experimentation, where the Experimenter talked to and played with the child.[2.] Toys not used in the tasks were introduced and played with during this period.

A total of 118 children was tested, with ages ranging from 2:11 to 4:2 years. 224 protocols were taken as although each experiment to be reported was conducted with different children, each child typically participated in at least two experiments (one of production and one of comprehension usually) in one session. The testing session lasted between 30 and 45 minutes. No intra-subject analysis was attempted since the experiments presented in any one session were as far as possible examining different abilities (comprehension vs. production) and different determiners (articles vs. demonstratives). The order of task presentation was not controlled, and typically between tasks there was an intervening period of play and/or talk.

The following three experiments look at the three year old's understanding of the articles in order to answer some questions about the young child's system of determination.

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1. The mother's presence was to enable the child to relax in the new environment, and also the mothers were able to view the experiments and, at the end, ask questions if they so wished.
2. Henceforth the Experimenter will be referred to as E.

2:2 Article comprehension experiments.

Experiment 1

Aim: Recalling Table 8, one theoretically assumed function of the indefinite article is to refer to any object in a class of objects, while one function of the definite article is to refer to an object previously linguistically mentioned (the intralinguistic anaphoric use). This experiment therefore aims to investigate whether children understand the anaphoric use of the definite article compared with their comprehension of the indefinite article to mean any one.

It should be noted that it is rare for the to be used anaphorically on its own. The expressions the same or the X again are more common, or the noun on its second mention is pronominalised. An example would be (from test sentence 4):

a. The Farmer's wife gets into a lorry.

b. (and) The Farmer gets into it.

Similarly with the use of the indefinite article. A second occurrence does not necessarily imply a different object. If this is so (a different object is to be implied), the second indefinite article is usually substituted by another. For example (from test sentence 1):

a. A dog goes ..... with the Farmer's wife.

b. (and) Another dog goes ..... with the Farmer.

So although the use of the articles alone in the second sentences is not typically found in normal communication, Maratsos (1976) claims that young children can understand the contrast between the (same) and a(nother) based solely on the articles. This experiment

thus examines the theoretically assumed uses of the articles, uses which can be regarded as linguistically and cognitively contrastive.

Materials: Two model actors (the Farmer and the Farmer's wife) were used. Four identical pairs of model toys - two dogs, two cows, two lorries and two shoes - were also employed in this task.

Method: The children were required to act out verbal instructions using the model actors and toys. Each actor was required to perform the same action on a pair of objects. The verbal instructions were of four types, and are shown in Table 9.

Table 9 : Verbal instructions used in Experiment 1.

1.a A dog goes for a walk with the Farmer.
  b A dog goes for a walk with the Farmer's wife.

2.a A cow is stroked by the Farmer's wife.
  b The cow is stroked by the Farmer.

3.a The Farmer's wife puts on a red shoe.
  b The Farmer puts on a red shoe.

4.a The Farmer gets into a lorry.
  b The Farmer's wife gets into the lorry.

Sentence pairs 1 and 2 have the noun with the variable article form as the subject of the sentence (NS), while sentences 3 and 4 have the noun as object (NO). The position of the article within the sentence, i.e. as the subject or as the object, is important since perhaps in accordance with the given/new information notion (Chafe, 1970), the definite article is preferred in the subject position with the indefinite preferred in the object position. Varying the syntactic position of the definite and indefinite articles in the second sentence should enable examination of the importance of this

aspect in the comprehension of the articles.

Sentences 1 and 3 are of the type a - a (i.e. indefinite article in both places), while 2 and 4 are a - the. If the children were to interpret the anaphorically in these sentences, then it would be predicted that the same toy would be selected for the second instruction in a - the sentence pairs. The responses to these sentences (sentences containing the anaphoric use of the definite article) are to be compared withe toy chosen in response to the second indefinite article.

Procedure: Each child received all four pairs of instructions, in randomised order. Practice trials were given first, using the two model actors and one single object. For example, a practice example of NO sentences given was:

a. The Farmer kicks the ball.

b. The Farmer's wife kicks the ball.

The definite article was used in both cases as there was only one ball. The children were encouraged to use the model actors to carry out the instructions. In the four test sentences, the order of appearance and use of the two actors was systematically varied with the type of sentence (NS vs. NO) and with the article sequence (a - a or a - the).

Subjects: 16 children (8 male), mean age 3:6 (age range 3:1 - 4:1) served as subjects.

Results and Discussion: The results, shown in Table 10, present the choice of object to the second sentence presented for each of the four pairs of sentence The choice could be the same object as that previously selected, or the other object, i.e. a different one. Also

Table 10: The frequency of object choice to the second sentence in Experiment 1.

	Object choice		Total
	Same	Different	
Sentences			
NS			
1. a - a	3	13	16
2. a - the	5	11	16
NO			
3. a - a	3	13	16
4. a - the	5	11	16
Total	16	48	64

noted is the sentence type, NS or NO, specifying the syntactic position of the variable article form.

Table 10 shows that children tend always to choose the other member of an identical pair of objects, i.e. they choose the different object. The Binomial test (1-tailed) showed that for sentences 1 and 3, $p = 0.01$, indicating a significant tendency to select the other object. For sentences 2 and 4, the Binomial test did not indicate a significant tendency to select either object. So, there was no tendency to select the same object in response to the definite article in the second sentence. But can it be concluded that three year old children do not understand the anaphoric use of the definite article? There are two other considerations to be made.

The syntactic position of the variable article was also examined and it seems as if this per se makes no difference to the dominant trend of selecting the other object in response to the second sentence. There is no evidence to suggest that the definite article was better understood by these young children (or at least its function decoded accurately) when it was in the subject position.

Another consideration concerns the materials used. The use of only two identical objects per sentence, together with the use of two actors each of whom performed (or had performed on them) an action, might have led the young children to see a one-to-one correspondence between each actor and object. That is, after one actor had performed an action on one object, then logically, for the child, the other actor would perform the action on the other object. However, not all children did choose the other object, and when the definite article was used, 31% of the choices made (for each sentence type) were of the same object.

In conclusion, it seems that from this experiment the three year old child cannot understand the definite article used anaphorically. The responses to this function of the are typically the same as those to a second occurrence of the indefinite article. The child predominantly tends to choose the other object regardless of the article form used in the second sentence and regardless of the syntactic position of the noun. The choice of the other object in response to the second indefinite article can neither be seen to be correct (although a is to be interpreted as meaning any one of the objects), since only two objects were present. The task as constructed does not enable sufficient scope in the decoding of the indefinite article. The general tendency was to respond to both article forms in a similar manner.

Three year old children apparently cannot understand the anaphoric use of the definite article and a nonlinguistic explanation can be proposed for the predominant choice of a different object. As mentioned previously, the children perhaps match, in a one-to-one fashion, the two model actors with the two corresponding objects, with

a change of actor heralding a change of object also. Another related explanation as to why children almost invariably select the other object may concern a bias in responding. Notwithstanding the two alternate actors, perhaps children have a nonlinguistic bias to alternate their choices in response to a second sentence given a simple, two object array. In either case, the nonlinguistic explanation can account for the apparent problems in understanding the articles, given the methodological problems in the task. Although the articles were carrying more of a communicative burden than is normal, it cannot be concluded that the functions intended by their use are <u>not</u> being understood. Rather, in this present context, a nonlinguistic bias may be over-riding any attention that may be being paid to the functions of the articles. The second experiment examines the contrast between a different function of the definite article (the deictic use) and the indefinite article, again in its generic use.

Experiment 2

Aim: From Table 8, it can be seen that two uses of the definite article are deictic (=pointing) and exophoric. This experiment aims to examine young children's comprehension of the deictic use of the in its function to refer to either a unique object (a singleton) or to a single object alone in context. In the former case, the definite article might be regarded as redundant, since t e name of the object alone (as it is the only member of that class of objects in the current context) would suffice for identification. However in the latter case of a single object alone in context, the exophoric use of the definite article is more common. For example, one may say "the red book" to define one single member of a class of books, thus specifying it uniquely with respect to other books in the context. Or one might say "the blue book over there", specifying colour and relevant location (plus perhaps a nonlinguistic gesture accompanying the verbal utterance). However, in this experiment, the was used deictically together with the name of a member of a class of identical objects. The definite article is thus carrying an unusually large communicative burden, since normally, as the above examples indicate, more information is given to enable selection of a single member of a class of identical objects.

These functions of the deictic use of the definite article are again compared with the function of the indefinite article to mean any one of a class of objects. As in Experiment 1, responses to sentences containing a cannot be incorrect. The responses to the indefinite article can however be compared, and contrasted if necessary, with the responses given to the definite article. These latter responses can be deemed as appropriate or not.

Materials: A board divided into two 'fields' was placed on a table between the child and E. Each 'field' contained four animals, and two alternative arrangements were used. These are illustrated in Figure 2.

Figure 2 : Lay-out of the experiment material in Experiment 2.

	Fields	
	1.	2.
Array 1	One giraffe Two ducks One cow	One horse One duck Two cows
Array 2	One calf One pig Two horses	One panda bear Two pigs One horse

Each field contained one animal unique to the entire array. In Array 1, the giraffe was in field 1, the horse in field 2 ; while in Array 2, the calf was in field 1 and the panda in field 2. Also, each array contained two 3-membered sets of identical animals.- ducks and cows in Array 1, and pigs and horses in Array 2. These two 3-membered sets were divided in the ratios 2:1 and 1:2 respectively between the two fields of each array. For example, Array 1, field 1 had one cow matched with two in field 2, plus two ducks matched with the solitary one in field 2. Array 2 was similarly composed. The left/right field arrangement was systematically varied, but the animals were always positioned within the fields as illustrated in Figure 2. In an attempt to maintain the child's interest in the task, and to prevent perseveration of responses, the content of the arrays was varied (as illustrated), but as the compositions of the two arrays used are the same, the results combine the data from both arrays.

Method: The child was asked to give E. certain animals, one at a time, directed by the request "Could I please have .....?". The article forms determining the noun specified were systematically varied. The definite article was always used to refer to the unique singletons, i.e. the giraffe, and the horse in Array 1. This form was presented either first or last in a sequence of three requests. The other two requests asked per each array were the plus the name of one of the identical animals and a plus one identical animal. It was hypothesised that the definite article would direct the child to select the physically separate animal named, while the indefinite article together with the name of the other identical animal class would lead to the selection of any of the named animals.

The order of requests per array made to the child was varied systematically, but was always one of the following:

a. the (singleton), the (identical), a (identical);

b. the (singleton), a (identical), the (identical);

c. a (identical), the (identical), the (singleton);

d. the (identical), a (identical), the (singleton).

Each child received requests to one array, with the positions of fields within an array and order of requests questions (involving article use and position of singleton) varied systematically across children.

Procedure: The children were again tested individually , and after familiarisation (both socially and with materials similar to those used), the experimental session commenced.

Subjects: 32 children (17 male) of mean age 3:6 (age range 3:0 -

4:0) served as subjects.

Results and Discussion: The results are shown according to the animal selected in response to each of the directing sentences, and also according to whether the unique singleton was requested first (n=16) or last (n=16). The responses made to the two arrays are combined for the purpose of analysis. Also, the actual names of the animals in the 3-membered classes are excluded, and the one alone is termed the physically separate identical animal, while choice of one of the two identical animals together is so termed. Unique refers to the only animal of that class in any array. Table 11 shows the results.

Table 11 : Responses (in terms of animal choice) to the article forms used in Experiment 2.

	Unique	Physically separate identical	One of the two identical
Singleton first			
the + singleton	16	0	0
the + identical	0	6	10
a + identical	0	5	11
Singleton last			
the + identical	0	7	9
a + identical	0	7	9
the + singleton	16	0	0

From the table, it can be seen that the use of the definite article to indicate the unique animal, the singleton, always led to a choice of the singleton, whether it was presented first or last, $\chi^2=16.35$, $df=2$, $p < .0001$. However, the name of the animal alone would suffice for correct selection, so the deictic function of the definite article only alerts the child to the fact that such an animal is there, and

because there was only one such animal, a correct choice was made.

When the singleton was presented first, in response to <u>the</u> plus the name of one of the identical animals, $\chi^2 = 6.87$, df = 2, $p < 0.05$, and in response to <u>a</u>, $\chi^2 = 7.41$, df = 2, $p < 0.05$. This indicates that there was a slight preference for selecting one of the two animals position together. When the singleton was presented last, in both cases $\chi^2 = 6.59$, df = 2, $p < 0.05$, again indicating a preference for one of the two identical objects located together. So, the article used in the directing sentence made no difference to the dominant preferences noted in Table 11. It seems again that the high communicative burden placed on the definite article in its deictic function here is such that children again apparently do not contrast it with the indefinite article. That is, they make no apparent distinction in their selection of objects.

Consideration must now be given to the selection patterns (i.e. the patterns of choice of animal) in this experiment. Because of the lay-out of the materials, in some sequences of three requests the animals which should have been selected in response to <u>the</u> + singleton and <u>the</u> + identical were in the same field, and sometimes they were in different fields. For example, in the first case, <u>the</u> giraffe and <u>the</u> (physically separate) cow are both in field 1, array 1, while in the latter case, <u>the</u> calf and <u>the</u> (separate) horse are located in field 1 and field 2 respectively of array 2. Therefore one can consider the response patterns for these two types of arrangement.

Table 12 shows the response patterns in terms of the location of the choices made, regardless of the article form, but in relation to the singleton (which was always located successfully).

Table 12 : Response patterns in Experiment 2.

Pattern	n
Singleton first	
Always choose same side as singleton	9
Choose from other side after singleton	2
Alternate choices after singleton	5
Total	16
Singleton last	
Always choose same side (as final singleton)	7
Choose one side and alter for singleton	4
Alternate choices before singleton	5
Total	16

From Table 12 it can be seen that the most popular pattern of response overall was to choose objects from one specific spatial location. When the singleton was presented first (and all children successfully located it), most children continued to select objects from the same side of the array. This resulted in only two children making correct choices in response to the definite article referring to the spatially separate object. Of those children who shifted their choice to the other field after the singleton, only one child was correct with respect to the selection of the physically separate object after a definite article request. Of the five children who alternated their choices, three made the correct choice of the physically separate object for a definite reference, two receiving the last, and one receiving the second. These children therefore alternated their choices and were directed to the correct choice of the physically separate object by the definite article, while contrasting it with the indefinite article with the selection of one of the two other identical objects located together in response to a.

When the singleton was presented last, all children located it successfully. However, the other articles were presented first, and seven children made all their choices from one side of the array, exhibiting a preference for one field, the field which co-incidentally contained the last-mentioned singleton. Of these seven, three made correct choices to the definite article referring to the physically separate identical object, located at the same side of the array as the singleton. Four children chose from one field prior to switching their choice to the other field for correct selection of the singleton. Two of these children successfully chose the physically separate object in response to the definite article. Finally, five children alternated their choices, two children making correct choices to the physically separate identical object, while also making the correct choice of any object to the indefinite article.

In conclusion, children were directed to the correct choice of the singleton and of <u>any</u> member of the class of identical objects, not by the article used, but by the name of the object. In the case under major consideration, namely the use of the definite article to refer to a physically separate member of a multi-membered class, less than half the children made the correct choice. And, amongst those, at least half of the choices are fortuitous since a response bias is possibly operating. This is discussed more fully in section 2:3. Only children who alternated their choices could be said to be guided by the language of the request, and then not always successfully in terms of the correctness of the choice.

The final comprehension experiment returns to examine the anaphoric use of the definite article, as contrasted with the indefinite article,

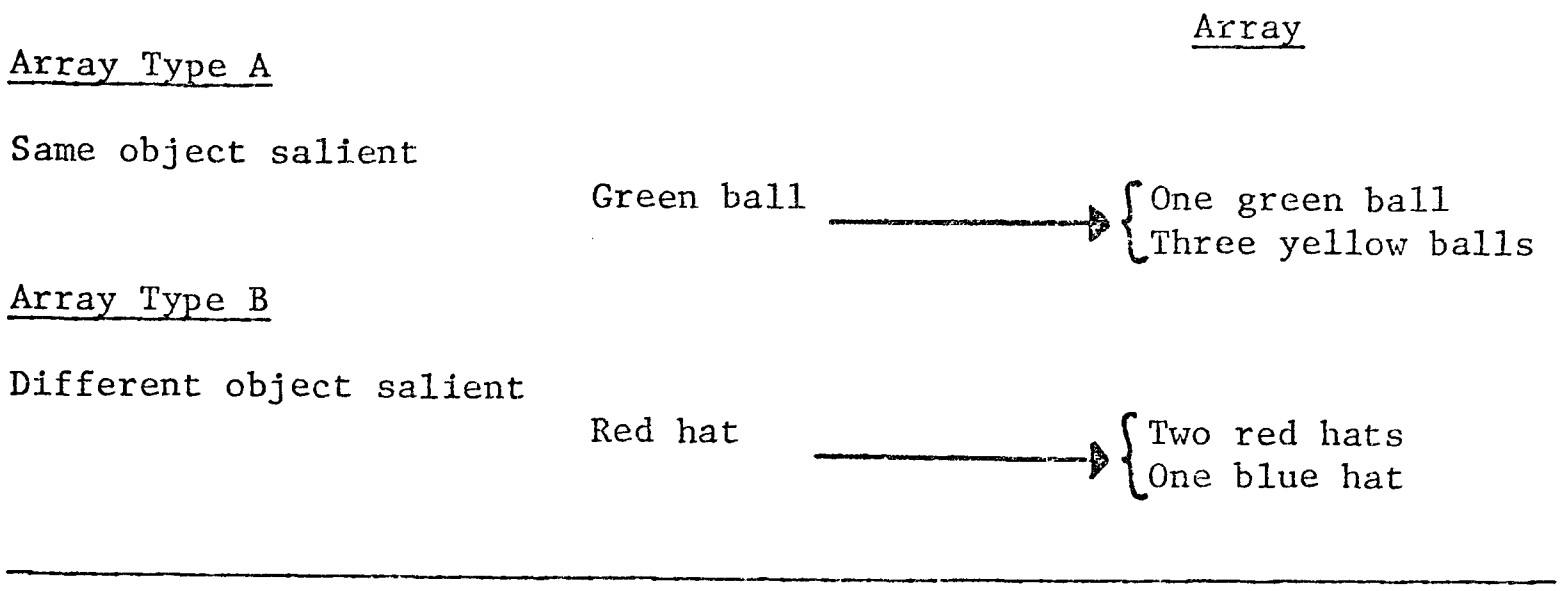
but in a context different to that used in Experiments 1 and 2, such that recourse to response bias explanations cannot be made.

Experiment 3

Aim: In this experiment the children were directed to choose pictorially represented objects on the basis of the article form used. That is, after verbal identification of an object, the child is then requested to select an object from an array. This array contains the just-identified object as either the salient odd-man-out, or as one of several identical objects. For example, the child may first verbally identify a hat. He is then presented with pictures of hats, one of which is identical to that hat just identified. The child is then asked to select the hat or a hat, and his choice recorded. In response to the hat, it would be expected that the same hat would be selected, while any hat would be selected to the indefinite article. That is, the anaphoric use of the definite article (to refer to an already-identified object) is being contrasted with the generic use of the indefinite article, the contrast being represented pictorially in different ways.

Method: Each child was first presented with a single picture on a card which he was asked to verbally identify. An array of pictorially represented objects was then presented. Two array types were used. In array type A, a set of objects similar to the one just identified was presented, with one object identical to the one identified. In array type B, the set was composed of objects identical to the one just identified, bar one which was similar. Examples of the two types of array are given in Figure 3. For salience, colour and size differences between the objects were used. That is, the salient object in any array was of the same class as the other objects, but was a different colour or size.

Figure 3 : Examples of the material used in Experiment 3.



In array type A, the salient object in the array is the same as the one previously identified. So, from Figure 3, the green ball is first identified by the child, and then an array composed of three yellow balls and one green ball is presented. The green ball in the array is salient since it differs with respect to its colour from the other balls. In array type B on the other hand, the salient object in the array is different to the one previously identified.

Therefore, assuming a contrast would be made through differential object selection, with type A arrays, the child, directed by the definite article would select the same object, the salient referent. Directed by the indefinite article, the child could choose <u>any</u> of the objects in the array including the salient one. In type B arrays, where the most visually salient object is not the one previously identified, the use of the definite article could lead the child to select either the most salient object in the present array <u>or</u> one of the other ones, any one of which is identical to the one previously identified. The use of the indefinite article would again lead the child to select <u>any</u> object in the array including the salient one.

The experiment is therefore designed to look at the objects selected in response to the articles to see if three year old children are making a distinction between the and a.

Two type A arrays and two type B arrays were used, and each child received all four. The order of array presentation, and the article used in the utterance directing the child to select a/the object was varied. Each child received both an a and a the request to each array. The directing utterance took the form "Now show me a/the (name of the object just identified)".

Subjects: 5 children (3 male) of mean age 3:5 (age range 3:1 - 3:10) served as subjects.

Results and Discussion: The results are tabulated according to the choice of object depending on the array used (type A or type B) and the article form used in the directing utterance. The responses to both the type A arrays are combined, as are the responses to both the type B arrays, and are shown in Table 13.

Table 13 : Choice of object in response to directing utterance containing the articles.

		Salient = same	Non-salient = different	Total
Type A				
	the	7	3	10
	a	3	7	10
		Salient = different	**Non-salient = same**	
Type B				
	the	2	8	10
	a	0	10	10

Since the numbers are too small to be analysed statistically a brief description of the results follows. With type A arrays, 7 choices were made of the same, salient object in response to the definite article, while 3 choices were made of non-salient objects. Therefore it would seem that the definite article is directing the child to make a choice of the salient object albeit the one already identified, from the array. When the indefinite article was used in the directing utterance, only 3 choices were of the same object, while 7 were of non-salient objects. In the case of type A arrays therefore, the articles appear to be differentially understood by three year old children.

With type B arrays, the use of the definite article led to 8 choices being made of an object identical to that already identified. The perceptually salient object was ignored in favour of the selection of an object that had been identified previously. The salient, albeit different object, was selected only twice in response to the definite article. When the indefinite article was used, all 10 choices were of one of the objects previously identified, while the perceptually salient object was never selected.

It appears that the definite article in both cases is leading to the selection of an object identical to that previously identified, regardless of whether this object was now depicted as being salient (type A arrays) or was amongst an array of identical objects, with a different one salient. The use of the indefinite article, on the other hand, led the children to choose any object other than the salient one on both array types.

The final comprehension study, investigating the child's understanding of certain article functions, showed that when the definite article is used, children tend to choose an object the same as the one that has already been identified, whether it is salient or not, while in response to the indefinite article, the child tends to choose any object, one that is not salient. However, only with type A arrays can it be said that the child, via his selections, might be distinguishing between the definite and indefinite articles, since the salient object was also the same one. In array type B, the same object is also non-salient, so that selections made are confounded, and it is impossible to state whether or not the children might be contrasting the articles. The type A arrays however suggest that a distinction may be being made and this might be interpreted as the children contrasting the anaphoric function of the definite article with the generic function of the indefinite article.

2:3 Conclusions to the comprehension experiments

These three experiments provide some indication of how difficult it is to make a valid assessment of the three year old's comprehension of the articles. Neither in Experiment 1 nor in Experiment 2 was there sufficient evidence to suggest that three year old children were aware of some of the theoretically assumed contrasts between the articles. Experiment 3, on the other hand, suggested that in one condition anaphoric _the_ may contrast with the indefinite article in its function to refer to _any_ member of the class. However this may be due, as was discussed earlier, to apparent comprehension by default. That is, anaphoric _the_ could be known (or even guessed to be known) to indicate reference to a previously identified and salient object. By exclusion, _a_ therefore should refer to any object not previously identified and also not salient. However with arrays where the previously identified object is now one of several and also is not salient, there is no apparent contrast being noted through differential object selection. Both article forms are responded to by selection of one of the same, though non-salient, objects. Thus this particular experiment illustrates how a task can be desigend such that a contrast can apparently be understood in one context. A slight manipulation of the pictorial material representing the cognitive content of the linguistic forms shows that the _same_ children now apparently cannot contrast anaphoric _the_ with the indefinite, generic use of _a_.

Experiments 1 and 2 similarly indicate that three year old children apparently do not understand contrasts between _the_ and _a_. Taken with the results of the type B arrays in Experiment 3, it can be shown that in each case an alternative interpretation is possible.

What seems to be operating is some form of response bias. In Experiment 1, the children almost invariably choose the other, different object when faced with either a or anaphoric the in the second directing utterance. In Experiment 2, children tend to select the objects from one spatial location (i.e. one field in the array) throughout. In Experiment 3, the children apparently select (one of) the same object(s) throughout, except with type A arrays, where an apparent contrast was being made. The biases made in Experiments 1 and , in particular, 2 could derive from the visible contexts used. In Experiment 1 the arrays were composed of only two model actors and two objects, and the children seemingly matched, in one-to-one correspondence the objects and the actors. In Experiment 2, fields comprising similar animal compositions and animal reduplication were used which may simply have resulted in the children's tendency to base their choices of the named animals from one side of the array or field. Could these response biases be the cause or the effect of the lack of comprehension of the article contrast?

These nonlinguistic response biases resemble those found in other studies of children's cognitive and linguistic development. For example, in studies of the words more and less (e.g. Donaldson and Balfour, 1968; Palermo, 1973, 1974), children select the object having more in response to a request for the one with less. The explanation that the child simply confounds the two words, assimilating the meaning of less to more and has not grasped the relevant notions they encode, will not suffice. A response bias explantion might be valid here (cf. Carey, 1978; Trehub and Abramovitch, 1978), as the children apparently always select the one with more (be it taller, bigger, fuller, more numerous) even when

given a nonsense syllable in the request. The child cannot attribute any meaning to the nonsense syllable, but continues to select the object with more, as he does in response to less. Similar biases could also be operating with respect to other pairs of words, or antonyms, including the words same and different (Donaldson and Wales, 1970) and before and after (E. Clark, 1971).

Although the articles are not being considered as a contrastive pair in the same manner as the previous words are, the same difficulties in attempting to assess a child's understanding of the terms in the language are encountered. In each experiment, at least one theoretically assumed function of the definite article was being contrasted with a similarly theoretically assumed function of the indefinite article. The contrast, if any were manifested, would be seen via differential object selection to each article form.

As in all experiments involving nonlinguistic choices, the cognitive content of the linguistic terms is represented visually through the use of appropriately constructed arrays composed of objects or pictures. Only in one experiment (and with one array type) was there apparent understanding of the article contrast. Does this then mean that in the other experiments the children were unable to understand the intended contrast? That is, were the children failing to understand the language and thus resorting to nonlinguistic response biases? Or, was the bias that was recorded blocking any potential understanding? If the children were failing to understand the language, then it is surprising that they responded at all. But nevertheless, children show an amazing persistence in responding in all manner of situations where the language of the experimenter is not understood (see Grieve, 1980, for a review of these issues).

These has however been no resolution of the problem of whether the response bias blocks the child's comprehension of language, and specifically, the articles, or whether the lack of understanding then leads to a nonlinguistic response bias being recorded. At best, most other accounts (e.g. Carey, 1978; Grieve and Stanley, 1981) provide an explantion in terms of the child being unable to understand the language but responding anyway. Such responding apparently favours some aspect of the array (representing the cognitive content of the verbal utterances) which results in an apparent response bias. Alter the visual representation of the cognitive content, and both the response bias disappears and the children seemingly understand the language. This was clearly shown in Experiment 3.

In conclusion, the apparent difficulty three year old children have in understanding the contrast between the articles is due to one of two problems, or even to both. Either problem could be applicable to any task purportedly looking at cognitive and linguistic comprehension. Firstly there could be what Karmiloff-Smith (1979, p.170) calls "an underlying theoretical problem" with devising experiments to assess comprehension of the articles. Or, there could simply be a problem in devising <u>any</u> task that accurately assesses comprehension of linguistic terms. Perhaps the two problems are not unrelated, since a theoretical problem could result in the tasks that are designed not being accurate in what they are examining. In Experiments 1, 2 and 3 the theoretical contrasts were only assumptions. These assumptions may therefore not be accurate although they were based on adult article use, and they did apparently stand up to empirical verification in one condition of Experiment 3. So the problem possibly lies in the

design of the tasks. In general, we cannot now conclude that children do or do not understand the articles, given that the data on which the discussion is based are selections of objects. We also cannot conclude that the theoretical assumptions on which the experiments were based were or were not correct, and it is for this reason that, using the same assumptions, we turn now to examine how three year old children use the articles.

Chapter 3 Article production.

3:1 Introduction

The approach taken in this thesis demands that all forms of determination elicited by a certain experiment be studied. Obviously, the young child's productive abilities are at least as important as his ability to understand the forms and functions of the language spoken around him. Experiments can be devised to show that children can contrast the articles (cf. Maratsos, 1976), but does the child normally regard them as a contrastive system? I believe, from a theoretical point of view at least, that this is not the case, and Karmiloff-Smith (1976, 1979) has empirical evidence to vouch for this view. However, one can devise experiments to elicit the determiners which do not depend entirely on the theoretical notion of a contrastive system of article use. The experiments to be reported in this chapter gratifying did elicit the articles predominantly. Although each task was standardised across children, sufficient flexibility was allowed to examine the uses and functions of the articles in each experiment. Not only were the article forms quantified, but their specific function in that context examined. And it is this latter aspect of the analysis that yields the interesting results. Since all the responses elicited were recorded and analysed, the forms and functions of the articles (and other determiners) were examined across experiments (i.e. across different tasks). This method of data collection and analysis results in a clear picture of the uses (the forms and the functions available) of the determiners in the speech of three year old children. The flexibility of the approach enables drawing conclusions about the forms and functions used by young

children without either deriving the tasks from a contrastive view of article usage or attempting to reconcile the forms elicited with such a contrastive system.

The tasks aimed to elicit speech including the determiners and a variety of techniques was employed. In general, an array was presented to the children which could be manipulated as required, with a question then being posed to the children. Both the verbal and the non-verbal responses to the questions were recorded. The specific experimental manipulations and their intended effects are:

Variable	Intended effect
1. Naming of the objects	Subsequent mention with anaphoric *the*.
2. Question form used by E	Differential article use in responses (based on adult performance).
3. Hidden vs. visible arrays	Hidden array to promote verbal encoding by removing the recourse to gesture.
4. Class composition of the array	Differential article use to unique, similar and identical members of classes of objects.
5. Blindfolding the E	Alter expectations (social and and linguistic) and promote verbal encoding.

Each variable under consideration has some intended effect, either to promote verbal (as opposed to non-verbal) encoding of the arrays (Variables 3 and 5) or to promote specific article functions (Variables 1, 2 and 4). These specific functions expected derive from adult-based usage and were illustrated in Table 8. In each of the following production experiments, at least one of these variables was included. Experiments 5, 6 and 7 consider variables 1 through 4 and are followed by a brief discussion. Experiment 8 considers variable 5

together with variable 4. In each experiment the determiners elicited are quantified (either as frequencies or proportions or both) and the results statistically analysed where possible. This thesis was intended to be descriptive, so a significant difference between, for example, two groups, indicates only a quantitative difference in frequencies. There still may or may not be a qualitative difference in the responses, and the discussions focus on this aspect of the data. After the quantified results have been presented, the discussion focusses on the functions of the articles (and other determiners) within each procedure. A conclusion is finally drawn regarding the uses of the and a by the three year old child and under which conditions these functions of the articles were noted.

3:2 Article production experiments

Experiment 4

Aim: This experiment aims to establish whether naming with the indefinite article is a stable phenomenon in children of age three years. This function of the indefinite article is well-documented as appearing early in children's use of the articles, and its form is a + N (or it's a + N, or that's a + N) when a child is verbally identifying an object.

Warden (1973, p.127), after his experiments and brief naturalistic study, concluded:

> In the light of our results, we would describe a child's developing control of the articles in referring expressions in the following terms. From an early age (about 2 years), children can use the indefinite article in its nominative sense .....

And Karmiloff-Smith (1976, p.306) in her conclusion, states:

> The overall results indicate that children make one fundamental difference between the articles very early: the indefinite article has a naming function, ...

Brown (1973), in his longitudinal study, cites examples of naming statements appearing in the children's corpus of utterances at around Stages IV to V. For example, 'It's a gun' and 'He's a witch'.

This experiment looked specifically at a technique designed to elicit naming statements with the indefinite article, although unique objects (to elicit the definite article) and objects that required no article forms were also included to see if differential

article use resulted.

Method: Eight sheets of paper were prepared with five or six pictures on each. The pictures were of objects (animate and inanimate) judged to be familiar to the children. Most pictures were included because they would elicit the indefinite article in a naming statement of the kind "a + N". Also included were some unique objects (e.g. the sun, the Queen) and some plural nouns. The latter were included to elicit either no article form or some. Abstract colour names, requiring no article form, were also included.

The children were asked to tell the E. what was on each sheet of paper. The naming statements were elicited by the question "Can you tell me what pictures you can see on this sheet of paper?". Each sheet was presented separately, and the children generally had no trouble complying with the request. The child's attention was never drawn to any specific picture, and if a prompt were needed, the question "Are there any more things on there you know and can tell me?" sufficed. Failures to identify pictures and additional namings of subsidiary objects in the pictures were unavoidable, the former occurring more commonly than the latter.

The order of presentation of the eight sheets of pictures was systematically randomised, and each subject received all eight sheets.

Subjects: 7 children (4 male) of mean age 3:6 (age range 3:2 to 3:8) served as subjects.

Results and Discussion: Table 14 shows the distribution of the observed and the potential frequencies of article forms per sheet. The pictures

Table 14 : Distribution of observed and potential frequencies of article usage for each sheet of pictures.

	A		THE		NO ARTICLE		TOTAL	
	Observed	Potential	Observed	Potential	Observed	Potential	Observed	Potential
Sheet 1	18	28	0	0	16	14	34	42
Sheet 2	22	28	0	7	20	7	42	42
Sheet 3	16	21	0	7	18	7	34	35
Sheet 4	26	21	1	7	16	14	43[1.]	42
Sheet 5	14	14	1	7	19	14	34	35
Sheet 6	23	28	0	0	13	7	36[1.]	35
Sheet 7	28	42	0	0	12	0	40	42
Sheet 8	13	21	0	0	21	14	34	35
Total	160	203	2	28	135	77	297	308

Appropriateness

138 appropriate
10 where the required
12 where no article required

2 uses appropriate

52 uses appropriate
70 where a required
13 where the required

were either indefinite, definite or plural/abstract (no article required). The potential frequencies were derived by counting the number of pictures per sheet requiring the specified article form and multiplying it by the number of subjects. So, for example, on sheet 1, there were four pictures requiring the indefinite article, multiplied by the number of subjects (7) results in a potential frequency for the indefinite article of 28. The observed frequencies of article forms were those instances of the articles found per sheet, regardless of appropriateness. T tests were performed between the observed and the potential frequencies for the occurrences of the articles. For the indefinite article, $t = 1.5$, a non-significant difference. For the definite article, $t = 2.48$, $df. = 14$, $p < 0.05$ (one tailed), and for the use of no article, $t = 4.22$, $df. = 14$, $p < 0.001$ (one tailed), indicating significant differences between the observed and the potential frequencies for these two article categories. In the case of the definite article, less were observed that the potential number (2 vs. 28), while in the case of no article, article forms were often omitted, increasing this total (135) past that expected (77).

The appropriateness of the article forms used must also be taken into consideration, and this aspect is included in Table 14. Derived from the Observed columns, the indefinite article was used appropriately in 138 out of 160 instances, 10 were used where the definite article was required (i.e. with reference to the sun, children uttered a sun) and 12 occurred where there should have been no article form. The two occurrences of the definite article were both appropriate. In the case of no article, only 52 out of 135 are correct appropriate uses, while the other instances (i.e. where the and a were required) were instances of article omission on the part of the child. Both

the indefinite and no article forms were seen across all children. As will be seen in subsequent procedures, this phenomenon of article omission is common in children of this age - it is as if they are operating with an article system that is neither stable nor contrastive. However, this procedure did elicit naming statements with the indefinite article as anticipated, and it is with this in mind that a consideration of the uses of the indefinite article to name objects will be made.

Of the 160 instances of the indefinite article, 84 were of the type "a + N", and 76, "that's a + N" - both of which are naming statements, but the latter form assumes some degree of knowledge of the name of the object on the part of the child and the E. The use of the definite that plus the copula plus the indefinite article by the children implies that they presume E. has prior knowledge of the name of the object. The child is then merely calling attention to that object as distinct from others. Interestingly, almost all naming statements were accompanied by some gestural point (a specific indicator, but non-verbal), regardless of the article form used. Brown (1973, p. 397) mentions this rather curious phenomenon, viz. naming and pointing, i.e. drawing attention to some specific object while using the indefinite article. Brown says:

> All of this discussion (of the indefinite article) leaves one puzzling case. When pointing and naming something new, a thing both parents and children often do, one says That's a train or That's a bear. Why does the introductory sentence use a non-definite form? Nominatives of this sort are used in situations in which both speaker and listener are attending to the same specific referent, and in addition, the speaker is likely to be pointing to it ..... When a referent is nominated the thing itself is specific enough but it does not yet exist by name for the listener.

This explanation resolves the dilemma caused by the use of the name and the deictic, pointing, device together. However, other investigators are not inclined to agree with this. Brown is the only person to mention naming plus a point, and the experimental design used here seems to have elicited this combination. The child sees the need to point to the referent he is naming as if disambiguating the act of naming from the object under joint attention. Had the pictures been presented individually instead of in a set, then this phenomenon would almost certainly not have appeared. Linguistically, the use of <u>that's a</u> plus a point is more natural because both the linguistic and the non-linguistic systems are centred on a specific object. Perhaps also, where the article is omitted, the child sees the pointing gesture plus the name of the object as being sufficient to specify a particular referent.

It seems therefore that the procedure adopted in this experiment highlights how children do name objects. Young children see the need to name objects presented to them, but they also seek to make that object specific within the current context. This latter operation is accomplished through the use of the phrase <u>that's a</u>, through the use of a point, or both combined. At the age of three years, there is still a tendency to omit the article, while still marking the object deictically with a point, together with its name.

Two operations are thus seen in this procedure - the child being capable of producing a name on request, using appropriate linguistic means for doing this, or at least, comprehensible means, plus attempting to make the referent specific, either for himself or for his listener. Table 15 summarises both the linguistic and

Table 15 : Linguistic and nonlinguistic means of naming.

Linguistic	Nonlinguistic	n
a N	+ point	84
a N	- point	0
that's a N	+ point	76
that's a N	- point	0
N	+ point	129
N	- point	0

nonlinguistic processes at work when children are naming objects, together with the number of instances falling into each category.

The three year old child can thus use his linguistic resources to name objects. He seeks to make the object specific, the centre of joint attention, but he does this through his non-linguistic pointing gesture typically. The linguistic form that's a is more specific than either a or omission, but with all forms the child is also relying on nonlinguistic pointing gestures to indicate specificity. In naming, as referred to by other authors (e.g. Warden, 1973; Karmiloff-Smith, 1976, 1979), where there is some prior knowledge of the identity of the object assumed between the child-speaker and the adult-listener, then the child sees no reason to specify the object explicitly extralinguistically.

The next experiment now seeks to remove the recourse to gesture, by increasing the need for the child to use his language to communicate. In the next experiment then, the children were forced to use only their language in the identification of referents for E.

Experiment 5

Aim: This experiment considers two variables - naming of the objects to elicit nominative statements with the indefinite article, and subsequent hiding of the objects, one at a time. The hiding was to promote verbal responding, in this case, the hypothesised use of the definite article (in its anaphoric function) plus the name of the object. The definite article was predicted since the objects had previously been identified linguistically and second (and subsequent) mention requires this use of the article.

In naming it was predicted from Experiment 4 that specificity of reference would be important - the children identifying the objects both linguistically (with or without an article form) and non-linguistically (with a pointing gesture). When being asked to subsequently identify each hidden object, no nonlinguistic gestures should be noted and all the responses will be verbal - either with the definite article or with the indefinite article (naming statements again).

Material: A square tray was set on the table between the child and E., on which were placed, in random order, ten objects. The objects used were: one yellow brick, one toy train engine, one toy car, one small red car, one toy cup, one rubber ring, one toy wheel, one toy lorry, one toy cow and one toy horse.

Method: The child was first asked to name the objects on the tray. This completed, E. hid the objects, one at a time, from the child's view. Each time the child was asked "What have I hidden?", 'What has gone?' or "What did I hide?", the last form being used most

frequently (about 80% of the time). The children were required to stipulate which object was concealed. Once this was done, the child was shown the object and it was placed to one side. All ten objects were dealt with in this manner.

Subjects: 10 children (6 male) of mean age 3:6 (age range 2:11 - 4:1) participated.

Results and Discussion: The quantified results are given below:

Table 16: Frequency of article forms produced and omitted in Naming and Hiding

	Naming			
	A	The	Omission	Total
Child 1	2	0	6	8
2	6	1	1	8
3	1	0	6	7
4	6	0	4	10
5	0	0	5	5
6	6	0	3	9
7	6	0	1	7
8	6	1	0	7
9	6	0	3	9
10	6	0	1	7
Total	45	2	30	77

	Hiding			
	A	The	Omission	Total
Child 1	10	0	1	11
2	1	6	3	10
3	4	0	6	10
4	2	6	2	10
5	5	4	0	9
6	0	7	3	10
7	10	0	1	11
8	4	0	6	10
9	2	6	3	11
10	4	0	6	10
Total	42	29	31	102

Table 16 shows the distribution of article forms used and omitted per child for each condition. Each item was theoretically responded to once in each condition, but only 77 responses were recorded in Naming due to failures to respond verbally to all the objects, while 102 responses were recorded in Hiding due to incorrect initial names being given to objects that were hidden. In order to compare the specific responses (a, the and omission) of the 10 subjects under the two conditions, the Cochran Q test was applied. The two conditions of Naming and Hiding did not have a statistically significant effect on the frequencies of a and article omission, while in the case of the, $Q = 5.83$, $df = 1$, p 0.05, which indicates that the frequencies of the were different under the two conditions with more instances being recorded in the Hiding condition. The overall frequencies are recorded as proportions in Table 17.

Table 17: Proportion of responses for each article form for both Naming and Hiding.

	A	The	Omission	Total
Naming (n=77)	.58	.03	.39	1.00
Hiding (n=102)	.41	.28	.31	1.00

Table 17 illustrates more clearly the changes in total article frequency from Naming to Hiding, with the proportion of responses with the definite article increasing from 0.03 to 0.28, while the proportion of responses using the indefinite article decreases slightly from 0.58 to 0.41.

The quantified results tell us little about what the children are actually doing in this task, except that they did, in general, use some form of determination (0.61 of the responses in the Naming part included an article, while 0.69 in the Hiding part included the or a). However, a more descriptive analysis will tell what the children were doing.

The Naming part of the experiment resulted in the children generally using the indefinite article, either alone with the noun (i.e. a + N, n = 32) or in phrase (i.e. it's a/that's a + N, n = 13) or omitting an article form (n = 30) - see Table 16. The indefinite article would have been appropriate in all cases. Article omission when naming is common (see Experiment 4) and the child frequently incorporates a pointing gesture into his naming phrase or word. The child is thus nonlinguistically specifying the object to which he is attributing a name and here often omits an article form. However, of the 30 instances of article omission, three were plural references, e.g. cars (referring to the two available cars), correctly so named without an article. The deictic marking with a nonlinguistic pointing gesture was also noted when the indefinite article was used.

The forms noted when naming in this task were:

Linguistic		Nonlinguistic
it's a / that's a } + N	(n=13)	plus point (n=4)
a + N	(n=32)	plus point (n=25)
N	(n=30)	plus point (n=22)

Therefore, of the 13 instances of linguistic specification of the object, four were accompanied by a nonlinguistic point, of the 32 instances of a + N, 25 were accompanied by a point (91%), and of the undetermined nouns, 22 were accompanied by a point (73%).

These results were achieved partially through the manner of presentation of the material to be named. In comparison with Experiment 4, this procedure used non-pictorial material with similar results (in terms of the proportions of different article forms elicited). In both tasks, an array of objects was presented so that the objects were not singled out in any way, either through the method of presentation or by E. pointing to individual pictures or objects. The child had to name the objects selected one by one by himself from the array, elicitation of the name being effected through the use of a non-specific question ("Can you tell me what you see here on the tray?").

The children opted to specify the object being named, either linguistically (it's a/that's a + N) or non-linguistically (through the use of a pointing gesture). The non-linguistic gestures accompanied naming statements of the kind a + N or N alone. The other type of naming statement is more specific linguistically and was only accompanied by a non-verbal gesture on four occasions.

The Hiding part of the task was aimed at removing the recourse to gesture for specificity of reference and to promote verbal encoding of the specificity. So the question forms used require the child to provide E. with some verbal identification of the hidden object, and here the articles used by the children were of a different pattern to those used in the Naming part, and no gestural accompaniments were noted. Although it was hypothesised that both the definite and indefinite articles would be evidenced in their anaphoric and naming functions respectively in the Hiding part of the procedure, all article forms occurred.

It may appear that the use of the definite article is anaphoric, but this would be unlikely. It is being used to mark the object, albeit hidden, under joint focus of attention. The is being used therefore as a deictic device when the object is known to both partices and is under linguistic consideration at the time of the child's utterance. So the striking thing that is apparent in this experiment is the increase in the use of the definite article in phrases of the type the + N, when the children were verbally identifying what had been hidden.

The indefinite article is functioning as hypothesised - to linguistically name the currently hidden object. When naming, while the preferred form was a + N, after the object had been hidden the response containing the indefinite article was it's a/that's a + N. The two forms have the same function, that of identifying an object, but the linguistic output in the Naming part was accompanied by a deictic pointing gesture, while in the Hiding part, the linguistic terminology is more specific and no gestures were noted. The specificity arose because only one object was under consideration at a time. Further, there was no nonlinguistic gesture because

the object was hidden and the child could not use the point to deictically indicate the object. The verbal message carried the specificity of indication, in a naming statement.

Both the definite and indefinite articles in the Hiding part were used, in different ways, to indicate a specific object. No occurrences of nonlinguistic markers of specificity were noted. The linguistic utterance, as hypothesised, carried the communicative burden, with the articles being used to either specifically name the object or to deictically mark the object under joint focus of attention.

However it cannot be ignored that an article form was omitted in about one third of the utterances recorded in the Hiding part. In the Naming part, article omission was accompanied by a nonlinguistic point in 22/30 instances, and the point carried the intention of singling out an object to which the child attributed a name. However in the Hiding part, no such extralinguistic markers of specificity were noted. So why did the children persist in omitting a form of determination? The children appear to be more concerned with providing only the name of an object, rather than specifying it accurately with the appropriate article form. Certainly in 19/31 instances where an article was omitted, the children were enthusiastically supplying the name of the hidden object. As no form of determination was provided, no specificity of reference was provided, only the identity through the name of the object.

The specific linguistic and nonlinguistic forms noted in the Hiding part of the experiment were thus:

Linguistic		Nonlinguistic
it's a / that's a + N	(n=42)	–
the + N	(n=29)	–
N	(n=31)	–

As predicted, no nonlinguistic markers of specificity were noted.

There were other determiners used in the Hiding part of the procedure and not recorded in Tables 16 and 17. Ten occurrences each of the demonstrative that were noted and these were:

seven instances of that one,

one instance of that ... you've taken away,

that funny brick,

that wheel's gone.

All ten examples included a point to the now vacant space on the tray where the object had been located previously. The latter two instances were not as simple as the first eight which were all deictic phrases indicating the location of the now hidden object. The last two mentioned are both examples of where the demonstrative is replaceable by the definite article, but that is preferred since it is more specific regarding location. There were also seven occurrences of there being used in the Hiding part - four in phrases of the kind what was there/it was there, one was there alone and the last two were utterances of the kind there's a N gone. These last two were included with uses of the indefinite article, since a is modifying the noun. Again, with the notable exception of the last two occurrences, a pointing gesture accompanied each utterance. A final five responses were made in the Hiding part, and these included another N twice, the other N twice, and one of those accompanied by a point to a similar object still on the tray.

The phrases involving (past) location (that and there) were being used deictically, indicating a position away from the child as speaker and involving a point to the empty space, since a specific non-proximal location was intended. This would be the case whether that or there was being used adjectivally or pronominally. The cases where that was used, but the definite article could be substituted are perhaps evidence of the child's growing awareness of that as a neutral deictic indicator. However, both examples recorded came from one child.

Finally, we turn to consider each individual child's pattern of responses to this experimental procedure. These patterns are shown in Table 18, where the form given most frequently (six times or more) to each part of the procedure per child is noted. The appropriate, adult, forms would be the use of a in the Naming part and the in the Hiding part, as the objects had already been identified linguistically. Four children exemplified this trend, on the verbal level. The children who used a in the Hiding part contributed 20 of the 42 recorded instances of this use, the other 22 being distributed between the other children. Only one child was totally inconsistent throughout.

Table 18 : Verbal response patterns of article use to the two parts of Experiment 5.

Naming	Hiding	Total	
a	the	4	(adult)
a	a	1	
a	omission	2	
omission	a	1	
omission	omission	1	
No pattern		1	
	Total	10	

In conclusion, this experiment shows the ability of the three year old to use the determiners in different ways, although not consistently. The marking of specificity of reference, either linguistically in the Hiding part or nonlinguistically in the Naming part, was an important objective for the children.

Naming of objects is accomplished through the use of the indefinite article, together with a nonlinguistic marker of specificity, or through the use of the name alone of the object plus the non-linguistic gesture. Removal of the object from view resulted in naming with the indefinite article, but with an increase in the use of specific verbal nomination statements such as that's a N. Hiding the objects removed the tendency to indicate specificity through nonlinguistic means. Here also the definite article was recorded. The use of the definite article was to deictically mark the object under current focus of linguistic attention. The omission of the article at this stage is due to a tendency to provide only the required name of the object.

This experiment considered two variables - naming and the use of a hidden object context. It was felt that naming (or prior verbal identification of the objects) per se was not the prime influence in the subsequent increase in the use of the definite article. The hidden context reduced the recourse to gesture and as such promoted more sophisticated verbal utterances. The question form "What did I hide?" would normally demand an answer " a + N" if the objects had not been identified linguistically previously, or "the + N" (the anaphoric use) if the objects had been identified. Although the N was used, the function of the definite article was not as hypothesised. The next experiment thus alters the form of

the question posed in a similar experimental technqiue, where the recourse to gesture (non-verbal responding) is reduced in an effort to promote verbal utterances.

Experiment 6

Aim: One of the ways an article contrast might be elicited is through a variation of the question form, i.e. variation of the question asked to elicit speech from children. Karmiloff-Smith (1976, 1979) found a difference in article use with older, French-speaking children depending on the question form used. She found that questions of the form "What did I hide?" led the children to respond with utterances of the kind "a N", while questions of the form "What did I do?" led to response statements of the kind "You hid the N". This experiment now considers the hypothesis that there might be a similar distinction made with the articles in English, and also that the sentential construction might be altered depending on the question posed.

However, from Experiment 5, where a question of the form "What did I hide?" led to a use of all article forms, an increase in the use of the definite article was noted from the Naming part of the task. The indefinite article (in its naming function) was the most common form. This question form, where the verb of action is specified, is to be compared with a non-specific question form, viz. "What did I do?". There was no prior naming of the objects in this task, in order to highlight any differences in article use to the two question forms. Karmiloff-Smith did include naming of the objects as part of her task, but after verbal identification, the definite article in its anaphoric function could be expected regardless of the question form. It was felt that exclusion of the naming variable would illuminate differential article use if any existed, in that article usage would not be dependent on previous linguistic knowledge of the objects.

Material: Each child was presented with three objects on a small square tray. Each child had a brief visual scan over the objects but was restrained from overtly naming them (although this was only necessary with a couple of children). Only three objects were presented at a time - either three different objects (e.g. a brick, a ball, an engine), three similar objects (e.g. a red, a green and a yellow brick) or three identical objects (e.g. three red balls). Each child received only one set of three objects.

Method: A similar method to that used in Experiment 5 was employed. E hid the objects, one at a time, and asked the child either "What did I do?" or "What did I hide?". All three objects were dealt with in this manner. Then, using the same objects per child, the procedure was repeated with the child hiding the objects. The same question form was repeated, but with appropriate pronoun changes, so that the questions were either "What did you do?" or "What did you hide?".

Subjects: 12 children (6 male) of mean age 3:7 (age range 3:0 - 4:0) served as subjects.

Results and Discussion: Although there was a low rate of responding to this task (55 responses out of a potential total of 72 - 73.4%) there are some interesting trends to report. The pronoun alteration made no difference to the patterns of article usage - the only change was a reduction in the number of responses when a 'you' question was posed. Table 19 shows the frequency and proportion of determiners elicited in response to the two question forms.

From this table, it can be seen that the indefinite article was the

Table 19 : Frequency and proportion of determiners elicited in response to the two questions posed.

	A	THE	OM.	THIS	THAT	IT	ONE	ADJ.	TOTAL
Do?									
Freq.	15	1	1	0	1	1	7	0	26
Propn.	.58	.03	.03	0	.03	.03	.30	0	1.00
Hide?									
Freq.	7	6	8	2	1	0	0	5	29
Propn.	.24	.21	.28	.07	.03	0	0	.17	1.00

most common determiner elicited after a Do question, while after Hide?, all article forms occurred.

The most interesting and consistent finding is that the form of the child's response varied according to the question asked, in agreement with Karmiloff-Smith, although article use varied. Questions with the word Do led to 17 out of the 26 recorded responses being made in the form of a pronoun plus specification of the action verb, plus, typically, a noun phrase comprising the indefinite article and a noun, e.g. "You've taken away a brick", or "I hid a ball". The other nine responses used the noun alone, with or without some form of determination. The majority of responses were again in the indefinite, using the word one. Overall, the indefinite article was clearly the preferred article after a Do question.

Questions including the word Hide led to a different type of response being produced. 24 of the 29 responses recorded were a noun phrase only, comprising a noun plus or minus some form of determination. No full sentences were produced.

However, although the form of the response utterance apparently varied according to the question posed, the arrays used were systematically varied. They were composed of either three different objects, three similar objects or three identical objects. Table 20 shows the distribution of determiners according to the question posed, to the classes of objects used. Similar objects elicited the greatest frequency of response (23 out of 55, or, 23 out of a potential 24 responses to that particular array type), while singletons elicited only 50% of the potential for that array type (three different objects). There was little difference between the total determiners elicited per class type, and overall little difference in the frequencies of determiners elicited per class type between the two question types. Thus the article forms and functions were found across all the different array compositions, indicating the influence of the question forms.

Class membership of the objects revealed interesting differences in demonstrative use, but because of the small number of utterances made with demonstratives, the results may be coincidental. Both occurrences of this appeared with objects that were identical, while that was only used with objects that were similar. No explanation is offered as to why this should be so, as there are insufficient examples of the pattern. However, the revealing and proffering of the objects (the latter action was seen only with that) with objects that were identical and similar is not surprising, particularly if the child's linguistic ability cannot deal with specifying the object verbally. The social and linguistic contexts for the use of the demonstratives seems to be very important, even to children who can use the differing contexts for the production of the demonstratives. Further experimental work in Chapter 4

Table 20 : Determiners elicited to different classes of animals per question type.

	Singleton	Similar	Identical	Total
DO?				
the	1	0	0	1
a	3	5	7	15
omission	0	0	1	1
this	0	0	0	0
that	0	1	0	1
it	1	0	0	1
one	0	2	5	7
adjective	0	0	0	0
Total	5	8	13	26
HIDE?				
the	1	2	3	6
a	2	5	0	7
omission	4	2	2	8
this	0	0	2	2
that	0	1	0	1
it	0	0	0	0
one	0	0	0	0
adjective	0	5	0	5
Total	7	15	7	29
Overall total	12	23	20	55

will discuss in more detail how this distinction is being made by three year old children, and how their use is dependent on specific parameters.

Overall, maintaining the hidden objects, but altering the question posed seems to affect the preferred article forms elicited. The major results to report are that Do questions, where the action is not specified, require the child to use the indefinite article predominantly, with the utterance being a full sentence, the child adding and specifying the necessary action verb plus the relevant

pronoun and noun. Hide questions led to article use varying, but the utterances are all of the form $\pm$ Article + N.

However, when the action is specified in Hide questions, the functions of the articles are identical to those found in Experiment 5, with similar relative proportions of a, the and omission being recorded. The is being used as deictic marker, while a is being used to name the object. All seven instances of a were of a specific naming construction - four being it's a and three being that's a. Again the omission of an article form is because of the child supplying only the name of the object currently hidden.

After Do questions, there was a different pattern of preferred article use. The indefinite article was used in 15 out of the 26 responses recorded (55%), with only one occurrence of the definite article and one instance of article omission. The function of the indefinite article is generic, a meaning the indefinite any one. Further substantiation of this comes from consideration of the whole sentence frame, e.g. "You hid a ball". Another frequently used determiner after a Do question was the indefinite numeral one. Seven responses contained this indefinite form, in phrases of the type one ball.

Three occurrences of the demonstratives appeared after "What did you hide?" - two instances of this and one instance of that, together with one further instance of that after a Do question. The two instances of this were : this brick and this one, both used when the child was referring to an object he was currently holding, and, at the time of the utterance, was showing it to E. Virtually the same conditions for usage apply to the two occurrences

of that. After "What did you hide?", the response made was that yellow one, and after "What did you do?", take that one away. In both instances the utterances were made when revealing the object to E., but when that was used, the child seemed to be proferring the object with an outstretched hand. Interestingly, the two types of demonstrative that occurred - that yellow one being an example of the demonstrative adjective which could be substituted by the definite article, while the second instance (take that one away) is an example of the pronominal demonstrative.

It was only used once, after a singleton had been hidden and E. asked "What did I do?". The child replied You've hidden it, perhaps because he did not have a readily available name for the object, or he had forgotten it. The use of the colour adjective alone was confined to one child who used this method to distinguish similar objects in response to Hide questions, both "What did I hide?" and "What did you hide?", although in the latter case, the child only produced two out of three expected responses. This is an interesting finding, as the child was clearly trying to make each object specific by marking it with its colour name.

Finally, the instances of one have been recorded. The seven occurrences tabulated do not include three uses of a one, since these were included in with the uses of the indefinite article, with one being a dummy marker in place of the name of the object. Two other occurrences of the dummy marker one were noted - blue one and yellow one, both after a Do question when the child was faced with an array of similar objects. Again in responses to "What did I do?". but with arrays of identical objects, five occurrences of one were found. Two examples of one followed by a colour adjective

were noted, which are examples of the numerical use of one, although the actual utterances did not distinguish the objects for the child or for E. since all objects had the same colour. There were also three occurrences of one alone - the meaning the child is trying to convey is unclear, but perhaps instead of resolving the confusion between three identical objects linguistically, the children resorted to the use of one.

In conclusion, this experiment again indicates the value of hiding the objects to promote verbal encoding. That is, many forms of determination were elicited. The use of the question "What did I hide?" led, as in Experiment 5, to all article forms appearing. This enables concluding that naming on its own did not affect subsequent article production in the hypothesised manner, since without prior verbal identification, the same article forms were noted. The functions of the articles after Hide? are the same as those found in Experiment 5.

However, questioning the child in a non-specific way, by the use of the question "What did I do?" resulted in a large proportion of the responses being of a full sentence specifying the action and including the generic use of the indefinite article. The class compositions of the arrays might affect the article functions, although the trends indicate that this is not the case. The only differences occur in the total frequencies of determiners used to the different arrays. The indefinite article occurred across all arrays when the action was not specified in the question, i.e. in response to a Do question, while the most frequently occurring determiners after Hide questions (the, a and omission) occurred across singletons and members of similar and identical classes of

animals.

This experiment thus shows that article usage can vary depending on the question form asked, and in a context where the objects are hidden. Experiment 7 now examines the variables studied in Experiments 5 and 6, i.e. prior naming, alteration of the question form and the class composition of the arrays, when the context remains visible at all times. This is in order to compare the article forms elicited in a context where the objects remain visible with those forms and functions elicited in Experiments 5 and 6.

Experiment 7

Aim: Having established the form of the response and the article functions when the context was 'hidden', this experiment seeks to establish whether it is the question form or the context, or both, which influences article use. In this experiment, the context remains visible at all times. Variables studied with the hidden context in Experiments 5 and 6 are now to be examined with arrays that remain visible, Below in diagrammatic form are the variables studied in Experiments 5 and 6:

	Experiment 5	Experiment 6
Context:	Hidden	Hidden
Naming:	Naming	Non Naming
Question:	Action specified (Hide)	Action specified (Hide) Action not specified (Do)
Result:	All article forms	Hide - all article forms Do - indefinite article in a sentence

The variables under consideration in Experiment 7 have all been studied previously, but this time the aim is to investigate the resulting article forms and functions when a visible context was used.

	Experiment 7
Context:	Visible
Naming:	Naming Not naming
Question:	Action specified (Knock over) Action not specified (Do)

Also again, like Experiment 6, the arrays were varied in their composition of classes to see if this alters the frequency, or perhaps the form, of article use in the visible context.

Although naming per se appears not to influence subsequent article use (as similar frequencies and functions of all article forms were found in both Experiments 5 and 6), it was incorporated in this experiment to investigate the effect of the visual context. This is to be compared with a no naming situation, and should no difference be found (like previously), then it can be concluded that children do not make subsequent references with specific article forms solely because they have prior linguistic knowledge of the objects.

Also under investigation are the two types of question - one specifying the action performed (in this case, knock over was specified as this action apparently appealed to three year old children) and one not specifying the action (a Do question). Should the article forms and functions that emerge be the same as those found with a hidden context (Experiment 6), then it can be concluded that the form of the question is definitely influencing subsequent article use. However, if the resulting uses are different, then it can be proposed that there is an interaction between the question form and the context. Like Experiment 6, the arrays were varied in the composition of the classes used, to see if this factor does, or does not, influence subsequent article use, or the preference for one form over another.

Material: Each child was presented with an array of four model animals, placed on the table in a line facing the child. E. sat

opposite. The following arrays were used:

4 different animals, e.g. a cow, a horse, a dog, a giraffe;

2 similar and 2 different animals, e.g. two cows (one striped and one orange), a duck, a pig;

2 identical and 2 different animals, e.g. two pink pigs, an elephant, a panda.

A model Farmer was also used to carry out the 'knocking over' of the animals.

Method: Half the subjects were required to name the animals placed before them, and once this was completed (where necessary), the Farmer was introduced by means of the phrase "And this is the Farmer". The Farmer then proceeded to knock over the animals in the array one at time. After concluding each individual action, i.e. the knocking over of an animal, the Farmer was removed to the side of the table while the child was questioned. Each child was asked either "What did the Farmer do?" (action not specified) or "What did the Farmer knock over?" (action specified) after each action. A verbal response was elicited, and the Farmer repeated the action on a different animal.

Each child received all three array types, in randomised order. Half the children named the objects prior to the Farmer performing his actions, while the other half did not. Each child received the same question type to each array.

Subjects: 12 children (7 male) of mean age 3:5 (age range 3:0 - 3:11) participated.

Results and Discussion: The interest lies in the forms and functions of the articles produced under various experimental manipulations

when the context remained visible at all times. The variables and their interrelations considered important are:

1. the effect of naming on subsequent article use, according to the question posed;
2. from 1, the effect of the question type per se;
3. the effect of the interaction between question type and the array used.

Firstly, the determiners (their frequency and proportion) elicited throughout are shown in Table 21. These numbers derive only from the determiners elicited when a question was asked. As can be seen, an article form (a or the) or the omission of a form of determination were the most common responses (90% of all responses), and the results and discussion will focus of these forms.

Table 21 : Frequency and proportion of determiners elicited to the questions posed in Experiment 7.

	A	THE	OM.	HIM IT ONE	THIS	THAT	ANOTHER	TOTAL
Freq.	21	63	40	3	2	7	1	137
Propn.	.15	.46	.29	.02	.02	.05	.01	1.00

Firstly, the article forms produced in response to the two question types depending on whether or not the animals had been named will be considered. Table 22 shows these results according to array.

Table 22: Frequency of article forms used in each condition per array.

	Array 1			Array 2			Array 3			
	a	the	omis.	a	the	omis.	a	the	omis.	No response
Naming-Do	0	11	0	0	12	0	0	11	0	2
Naming-Knock over	0	2	7	0	2	8	0	2	9	6
Not naming-Do	4	4	0	4	5	0	4	3	0	10
Not naming-Knock over	2	3	5	4	2	6	3	6	5	0

This table shows the frequency of article forms produced and omitted for the four conditions, each with three subjects, over the three arrays. The Cochran Q test revealed no significant differences in the frequencies of a, the and omission per group per array. Table 23 thus shows the combined frequencies of article forms produced per subject over all three arrays.

Table 23: Frequency of article forms used and omitted per child.

	A	The	Omission	NR	Total
Naming-Do					
Child 1	0	12	0	0	12
2	0	12	0	0	12
3	0	10	0	2	12
Naming-Knock over					
Child 4	0	2	6	4	12
5	0	4	6	2	12
6	0	0	12	0	12
Not naming-Do					
7	12	0	0	0	12
8	0	11	0	1	12
9	0	1	0	11	12
Not naming-Knock over					
10	1	6	5	0	12
11	4	4	4	0	12
12	4	1	7	0	12

It can be seen that several subjects, especially no.9, provided no responses to some items. T tests were conducted to compare the mean frequencies of specific article forms for Naming vs Not naming, and for Do questions vs Knock over questions. A significant difference in the responses of the subjects in the Naming vs Not naming conditions

for a, ($t = 3.8$, $df = 10$, $p < 0.01$) was revealed, and between Do and Knock over questions, there were significant differences between the frequencies of the ($t = 4.08$, $df = 10$, $p < 0.01$) and article omission ($t = 11.75$, $df = 10$, $p < 0.01$).

Overall it should be noted that this table shows that after the animals had been named, there were no instances of the indefinite article in response to either question form. Thus naming apparently discourages subsequent use of the indefinite article.

How did the children name the objects? Table 24 shows the forms produced when asked to name the arrays of objects.

Table 24: Frequency of forms of determination elicited in naming.

A	Omission	Total
17	38	55

From Table 24, it can be seen that in the Naming part, children tended to use the indefinite article or to omit an article form altogether. There were relatively more instances of omission in this experiment, and this may have been due to procedural differences. Only four objects were presented at a time in this experiment, whereas in Experiments 4 and 5, a selection of objects required names. With only four presented, it is easier to single out any one animal by name, regardless of class membership and hence no article form. For example, where there were four different animals, the child only needed to utter the name of the animals without making any further specification (i.e. either with an article form or through the use of a non-verbal gesture). In this case (of four different animals), there were eight instances of the indefinite article and 12 omissions of an article form. Similarly, article omission occurred with the other array types, and was most accentuated where there were two identical animals. No extra-linguistic markers of specificity were noted throughout the naming part of this procedure, unlike the experiments using arrays composed of a selction of objects where occurrences of pointing were noted whether an article form was used or not.

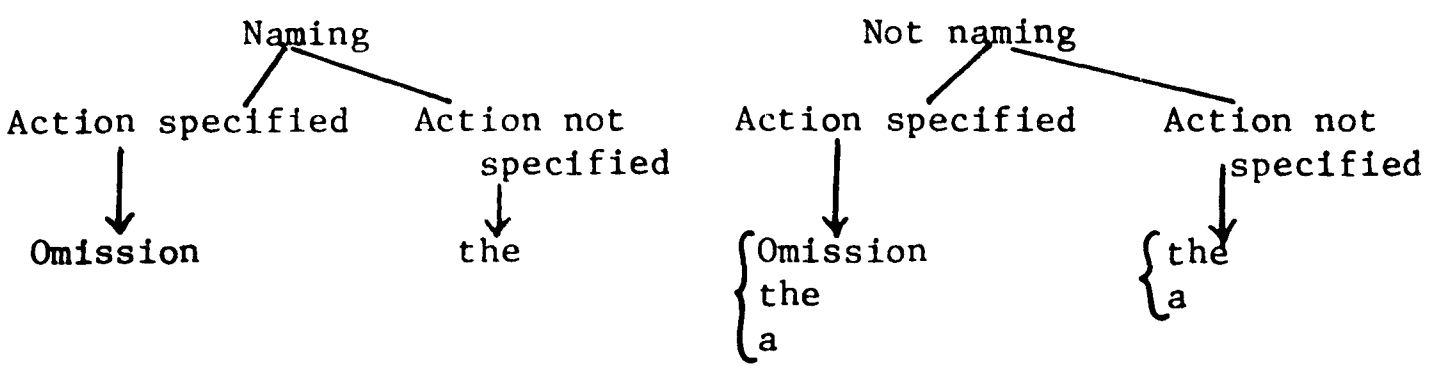
However, apart from the lack of the indefinite article after the animals had been named, there does seem to be a difference in the frequencies of article use and omission depending on the form of the question posed. Table 25, using recast data from Tables 22 and 23, shows the effect of the question form alone on subsequent article production, regardless of whether or not the objects were named. In gross terms, it can be seen that the effect of the question form per se is very

Table 25 : Combined frequencies, for both naming and not naming, of articles used in response to the two question forms.

	A	THE	OMISSION	TOTAL
DO?	12	46	0	58
KNOCK OVER?	9	17	40	66
Total	21	63	40	124

strong, with a Do question (where the action is not specified) leading to the definite article mainly, while after a Knock over question, article omission was the most frequent response.

Therefore, after questions specifying the action (Do questions), the definite article was the preferred form. After the objects had been named, all the responses included the definite article, while when there was no prior naming,both the definite and indefinite articles occurred. After a Do question, there were no instances of article omission. On the other hand, after a question specifying the action (knock over), omission of an article form was the most common response - especially after the objects had been named first. All article forms occurred after the animals had not been named, with article omission the most frequent. The results of the article forms so far can be summarised thus:



This discussion has ignored the fact that the animals were presented in specific class compositions. This factor should be taken into consideration. However a statistical analysis of the role of class composition in the preferred article usage already noted indicated that there were no significant differences due to the differential effects of class membership on the articles used. So this factor made no difference to the preferred elicited article forms.

The other two factors under scrutiny, viz. the prior verbal identification or naming of the objects and the form of the question asked seem to affect the pattern of preferred article use. With a visible array, the indefinite article never occurred in answer to subsequent questions after naming. So unlike Experiment 5, where a hidden context was used, a visible context eliminated the tendency to re-name the objects. In responses to "What did the Farmer do?", the definite article was the preferred form, while after "What did the Farmer knock over?", structures without an article form were elicited mainly. In the former case, a sentence of the type "He/The Farmer knocked over the N" was common, the child specifying the action verb, while the latter question typically elicited the noun alone without any form of determination. Therefore in the case of naming, although it led to no occurrences of the indefinite article, the form of the subsequent question affected the preferred article form along with the structure of the response.

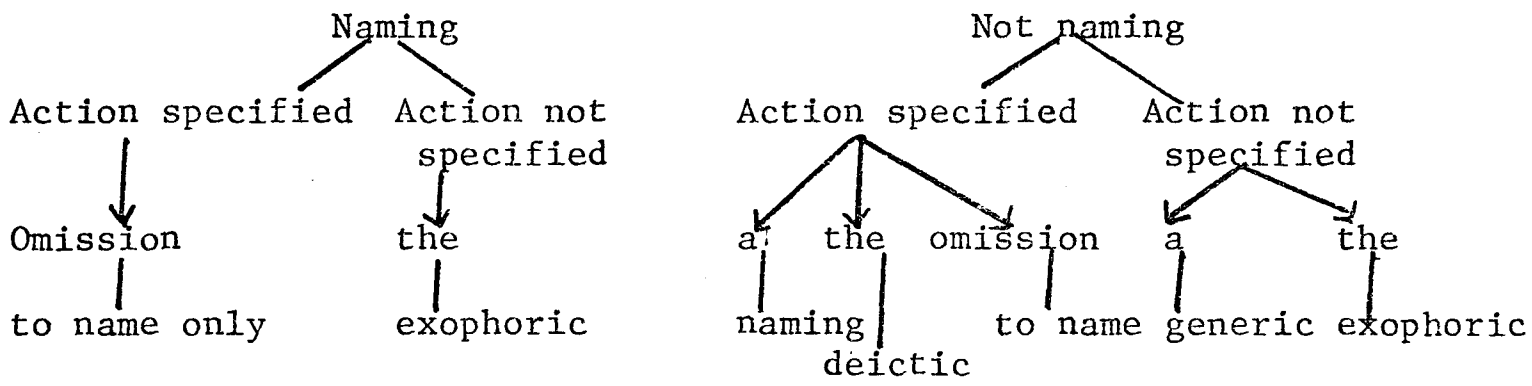
What were the functional effects of the two question forms used? Firstly let us look at the functions of the articles after the animals had been named. Do questions, where the verb of action is not specified, elicited the production of a full sentence, with the definite article determining the noun. This function of the

definite article is exophoric, the child relating his utterance to the specificity of the context, in this case, an action being performed on a certain object. After a Knock over question, the children tended to omit any form of determination (both verbal and non-verbal) and supplied only the name of the object. When there was any form of determination, it tended to be with the definite article (the), the child deictically marking the specific object.

However, when the animals had not been named, i.e. when the questions were asked after there had been no previous verbal identification, a somewhat different picture emerges. After a Do question, again the definite article was prevalent, but an equal number of occurrences of the indefinite article was also recorded. After the questions containing the action verb (knock over), again article omission was the most frequent, but instances of the definite and indefinite articles were also recorded. Some of the functions of the articles when there had been no prior naming are the same as those found after the objects had been named. For example, the use of the definite article after a Do question was again exophoric. A full sentence was supplied by the child with the definite article marking specificity. However, the same number of instances of the indefinite article were recorded and these too occurred in a sentence frame. This use exemplifies the indefinite article in its generic function, to mean any. The child has had no previous linguistic contact with the objects and chooses to use the indefinite article to indicate that the action he is specifying is being done on a non-specific exemplar of a class of objects. After a question specifying the action, the pattern of article use is similar to that found in Experiment 6. In the prior experiment, the context was hidden and the objects were not named. Here the visible context apparently

makes no difference to the preferred patterns of article functions. The definite article was being used deictically, the indefinite article to name the objects and the child supplying only the name when an article form was omitted. Neither the forms nor the functions of the articles produced or omitted were tied to the class composition of the arrays. Admittedly most of the objects were 'different', i.e. unique within a certain array, but the articles elicited to similar and identical animals did not differ in form or function.

Therefore after naming, the <u>form</u> of the subsequent question affected the preferred article used. After no previous verbal identification again the form of the question affected subsequent article production, but it resulted in different article functions. The results can be summarised as follows:



A comparison between the forms and functions of the articles elicited in Experiments 5, 6 and 7 is undertaken in the next section.

3:3 Summary of Experiments 5, 6 and 7

In the preceding series of experiments, different forms and functions of the articles have been found. Four variables have been examined, and some indication of their effects on article use can be seen. The four variables are:

1. the effect of prior naming of the objects;
2. the effect of the question form. Two forms were studied - one where the action was specified, and one where it was not;
3. the effect of a hidden vs. a visible array;
4. the effect of using different class compositions in the array.

The first three variables are interrelated in terms of their effects on article forms and functions. The use of different class compositions in the arrays did not affect the preferred article uses found. This variable will only be mentioned briefly. The manipulations so far undertaken are best summarised diagrammaticatically and Table 26 shows them. The proportions of each form have been rounded up or down to the nearest .05 for simplicity and regularisation of presentation.

Consider the effects of naming first. The objects were named in Experiments 5 and 7, and in both cases there was a subsequent question form specifying the action. In Experiment 5, the question Hide after naming led to all article forms appearing, while in Experiment 7 an article form was almost exclusively omitted after a Knock over question. Thus, there appears to be an effect of the context used on the article forms produced. In Experiment 5, where the context was hidden, there were more instances of the definite and indefinite articles, linguistically marking specificity of reference. In the visible context of Experiment 7, where both the child and the adult

Table 26 : The variables studied and their effects on the forms and functions of the articles produced in Experiments 5, 6 and 7.

Experiments	5	6		7			
Array type	Hidden	Hidden		Visible			
Naming	Naming	Not naming		Naming		Not naming	
Question form	Action specified	Action specified	Action not specified	Action specified	Action not specified	Action specified	Action not specified
Resulting article forms, proportions of occurrence and functions	a .40 naming the .30 deictic omission .30 to name only	omission .30 to name only a .25 naming the .20 deictic	a .60 generic	omission .70 to name only the .30 deictic	the 1.00 exophoric	omission .45 to name only the .30 deictic a .25 naming	a .35 generic the .35 exophoric

could see the objects, children simply tended to provide only the name of the objects, with neither linguistic nor nonlinguistic specificity markers. The other question form used after the children had named the objects was "What did the Farmer do?", used only in Experiment 7 where the visual array was constant. This form elicited the definite article in a full sentence, involving specification of the actor with a definite nominal or pronoun, the action verb and the object.

When the child does not name the objects first, a different pattern emerges. In Experiments 6 and 7, the question "What did I/you/ the Farmer do?" was asked, and again variations in the visual context led to different preferred article forms. In Experiment 6, almost all responses were of the kind "You hide a N". The indefinite is functioning in its generic non-specific use, since the objects had not previously been singled out by name and were also hidden at the time of the utterance. In Experiment 7, the Do question along with a visible context led to equal frequencies of the definite and indefinite articles. Verb specification after there had been no verbal identification by the children led to equal frequencies of all article forms - the definite, indefinite and article omission.

Thus the article forms produced after the objects had been named or had not been named appear to differ in frequency and in function. However, there is more agreement amongst the forms and functions when only the question form asked is considered, regardless of whether there had been naming and regardless of the context.

Specification of the action in the verb of the question usually led to article omission. This was particularly so in Experiment 7 where the

context was visible and regardless of whether the objects had been named. In all cases, the children were providing only the name of the object under consideration. Also appearing with omission, particularly in the hidden contexts of Experiments 5 and 6,were instances of the deictic use of the definite article and the naming function of the indefinite article. Here the children were specifying, either by deictically identifying or by naming, a particular object. These functions of the definite and indefinite articles also occurred in the visible context especially after the objects had not been named. The utterances were of the form $\pm$ Article + Noun.

After a question not specifying the action, a Do question, a full sentence was typically produced. In the hidden context of Experiment 6, the indefinite article in its generic, nonspecific function was the most common form. While in the visible context of Experiment 7, in a similar non-naming situation, both the generic indefinite and the exophoric definite articles appeared. Thus there is a relationship between the question type, the context of the array, and whether or not the objects had been named, since in Experiment 7, in the naming condition, the exophoric function of the definite article was the sole determiner used.

The question forms specifying the action seem to elicit article omission, the deictic function of the definite article and the naming function of the indefinite article consistently, across different experimental conditions. Although the precise relative percentages of each varies slightly, the forms and functions are the same regardelss of the context (hidden and visible) and regardless of whether or not the objects had been named. The question Do, not specifying the action, while always eliciting a full sentence, elicited different

forms and functions of the definite and indefinite articles, depending on the other variables (cf. prior naming discussed earlier).

The effect of using a hidden vs. a visible array has already been mentioned with reference to the effect of prior naming and the effect of the question form. This manipulation apparently interrelates with the previous two, since the forms and functions of the articles occurring were noted across both types of context.

Finally, the class composition of the arrays was included as a variable in Experiments 6 and 7, and did not affect the preferred article forms found.

What can be concluded is that the question form used exerts a powerful influence over the forms and functions of the articles produced by three year old children. A question form specifying the action, regardless of all other variables, elicits a noun phrase, with or without some form of determination. When the definite article is used, it is deictically marking the object under joint focus of attention, and when the indefinite article is used, it is for naming the particular object. Frequently though, the three year old children choose to simply provide the name of the object. When a question not specifying the action is asked, a full sentence is produced, always including some form of determination. This may be the definite or the indefinite article,and here the choice may be determined by the context and whether or not the objects have been named.

However, we do not know at this stage if:

1. the question posed influences the structure of the child's response

which in turn requires certain article usage; or

2. the question posed elicits the preferred article usages noted which in turn affect the structure of the response.

In adult use, in similar contexts, a question of the form "What did X do?" grammatically requires a response of the form "X did (or hid or whatever) the Y", a full sentence incorporating the definite article. While a question, for example, of the form "What did X hide?" elicits the response "A Y". Here the form of the question is presumably influencing the form and function of the article used in the response. It is proposed that indeed the tendency to respond with a full sentence is influenced by the specific question form, which in turn leads to the article functions found. Similarly, a question specifying the action leads to simple noun phrases being produced. However, the correct adult usages were not produced consistently, within and between children. This indicates that three year old children are largely insensitive to specific adult functions of the articles. However the forms and functions that did emerge illustrate the capabilities of these young children.

3:4 Experiment 8

Aim: There is one final variable to be examined in the child's production of the articles, viz. the alteration of the child's social and linguistic expectations about the task. The method selected involved blindfolding the experimenter so that she could neither see, nor could be believed to be able to see, the context. This would also, like the use of the hidden array, promote verbal encoding of the arrays. The task used was similar to that conducted in Experiment 7, where in one condition the child did not name the objects, the array was visible and the action was specified in the question. The expected article forms and functions elicited from these variables were documented previously. In this experiment, this condition is termed the seeing condition, and the expected outcome is to be explicitly compared with a condition where E. is blindfolded. This should alter the social aspect of the task since the child cannot presuppose knowledge on the part of E. of the content of the arrays. However, from Experiments 5, 6 and 7, it has been shown that the article forms and functions elicited when a specific question is posed are consistent across different experimental manipulations. Should this re-occur here, then it can be concluded that the children are largely insensitive to the social, communicative functions of the articles, and the choice of article form is largely arbitrary. The form of the response is determined by the form of the question. If there is a difference between either the form of the response and/or the article functions, then it can be proposed that the social aspect of the task is more influential in altering article usage than were the variables studied in the previous experiments.

Material: Like Experiment 7, arrays of model animals were used,

together with the (model) Farmer who performed the specified action. Each array of animals comprised one unique singleton (e.g. one horse), two similar animals (e.g. one brown and one black cow) and two identical animals (e.g. two saddleback pigs). Each child received three arrays of similar composition.

Method: The experiment was undertaken in two conditions. The first condition examined the articles produced when E. could see the array at all times, while the second condition looked at the articles produced when E. was blindfolded. In each condition, E. moved a model actor (the Farmer) amongst the animals. The Farmer was stopped beside each animal one at a time, and on each occasion, the child was asked "Who is the Farmer talking to?". The child then furnished a response before another animal was 'talked to'. In the Blindfolded condition, the blindfold was removed when the child was deemed to have given some verbal information for the identification and selection of a specific animal by E. As E. could not see, the child had to rely on his linguistic resources to indicate the specific animal for subsequent identification by E. This involved eliciting more than one utterance from each child in many instances. On each occasion, after the blindfold had been removed for (what transpired to be incorrect)identification, it was replaced before the question was repeated.

Procedure: A period of familiarisation, particularly in the Blindfolded condition, was instituted prior to commencing the task.

Subjects: In Condition 1 (E. not blindfolded, i.e. Seeing),12 children (5 male) of mean age 3:6, (age range 3:1 - 3:11) served

as subjects, while in Condition 2 (E. Blindfolded), 10 children (5 male) of mean age 3:7 (age range 3:2 - 4:1) served as subjects.

Results and Discussion: The results in Table 27 show the frequency and proportion of the different determiners elicited in Conditions 1 and 2. Only the first utterances elicited in the Blindfolded condition are considered - second and subsequent utterances are discussed later.

There was only a difference between the frequency of article omission between the two conditions $t = 10.83$, $df = 20$, $p < 0.001$), due mainly to the large frequency of omission when E could see. However, inspecting the tabulated results, it can be seen that overall the Seeing condition did result in similar relative proportions of the articles (the, a and omission) to those found under similar conditions in Experiments 5, 6 and 7. Here article omission was the most common response (.48), followed by the deictic use of the definite article (.26), with the indefinite article being used relatively infrequently in its naming function (.14). When E was blindfolded, most (52%) of the responses included a definite determiner. Despite differences in the relative proportions of article forms used and omitted between the two conditions, the functions of these forms is of interest here.

When E could see, the functions of the definite and indefinite article were the deictic use and the naming use respectively, while an article was omitted on the occasions where the child provided only the name of the object. When E was blindfolded the indefinite article was used in a naming statement, while the name of the object alone was being supplied when an article was

Table 27: Frequency and proportion of determiners used in the first utterances per condition

	A	The	Omiss	This	That	Other	Another	
Condition 1								
E Seeing								
Child 1	2	4	8	0	1	0	0	
2	2	3	9	0	0	1	0	
3	0	2	11	0	2	0	0	
4	4	4	3	0	3	1	0	
5	3	2	9	0	1	0	0	
6	1	4	6	0	0	0	4	
7	2	0	10	0	2	1	0	
8	2	5	7	0	0	0	1	
9	1	7	6	0	1	0	0	
10	7	2	4	0	2	0	0	
11	0	9	4	0	2	0	0	
12	1	5	9	0	0	0	0	
Total	25	47	86	0	14	3	5	= 180
Proportion	.14	.26	.48	.00	.08	.01	.03	
Condition 2								No Resp
E Blindfolded								
Child 1	0	6	4	1	3	0	0	1
2	1	5	4	0	1	0	0	4
3	4	4	3	0	1	0	0	3
4	3	5	2	0	0	0	0	5
5	5	3	2	1	1	0	0	3
6	4	5	1	0	0	0	0	5
7	5	2	3	1	1	0	0	3
8	3	7	1	2	0	0	0	2
9	2	6	3	0	0	0	0	4
10	3	4	2	0	1	0	0	5
Total	30	47	25	5	8	0	0	35
								=115
Proportion	.26	.41	.22	.04	.07	.00	.00	

omitted. However there was a greater relative proportion of instances of the definite article in this condition, and it is necessary to examine its function(s).

Recall that the animals were presented in arrays composed of different classes of animals -singletons, similar and identical animals. In terms of the frequencies of article forms (the, a and omission), there was no difference between the frequencies to each class within each condition (see Tables 28 and 29 for Condition 1 and Condition 2 respectively), with similar frequencies being elicited to all classes.

Table 28 : Article forms used to different classes of animals in Condition 1 (E. Seeing).

	Singletons	Similar	Identical	Total
a	4	10	11	25
the	17	16	14	47
omission	27	28	31	86
Total	48	54	56	158

Table 29 : Article forms used to different classes of animals in Condition 2 (E. Blindfolded).

	Singletons	Similar	Identical	Total
a	12	10	8	30
the	16	12	19	47
omission	8	9	8	25
Total	36	31	35	102

Although the class types used made no difference to the frequencies of the forms used, they did lead to differences in the functions of

the articles, notably in the blindfolded condition. When E. could see, the was used as a deictic marker in the form the + N across all classes of animals. When E. was blindfolded, a similar use of the definite article was noted when the utterances were referring to unique singletons and to one of a class of identical animals. In the latter case, the deictic function was produced because the child could see no features distinguishing the animals one from another. However, when distinguishing features were apparent to the child, as with animals similar to one another, the child noted the difference and verbally produced a phrase incorporating the features. A phrase of the type the + modifier + N - the exophoric use of the definite article - was typically produced. Interestingly, with these similar animals possessing visible distinguishing features (usually colour or size) and in Condition 1 where E. could see, the children accompanied their deictic use of the definite article with a nonlinguistic pointing gesture. In this case they were marking the visual distinction gesturally.

The definite article was used therefore, where at all possible, as a loose deictic indicator, not of specific identity but rather as a marker of the animal under joint focus of attention. Where there were distinguishing features, (i.e. where there were two similar animals at least), a different linguistic expression emerged when E. was blindfolded. The definite article was used in an expression linking the visual context to the child's use of the language. The child was able to use the visual information to provide linguistic specification for the blindfolded E. When E. could see, the child supplied nonlinguistic information to enable identification, together with the deictic use of the definite article. The use of the indefinite article and the use of the name alone (article omission)

were never accompanied by nonlinguistic gestures and their functions remained the same throughout.

Therefore, the comparison between the two experimental conditions can be summarised in Table 30. The proportions have been rounded up or down to the nearest .05 for simplicity of presentation.

Table 30 : Article forms and functions (in descending order of frequency) occurring in the two conditions, and according to class type.

	Singletons Identical	Proportion	Similar	Proportion
Condition 1				
E. Seeing	omission	.55	omission	.50
	the - deictic	.30	the - deictic + point	.25
	a - naming	.15	a - naming	.15
Condition 2				
E. Blindfolded				
	the - deictic	.40	the - exophoric	.55
	a - naming	.30	a - naming	.20
	omission	.25	omission	.20

There would thus appear to be an effect of class membership apparent here - similar animals which have clearly visible distinguishing features can be differentiated by the children - either verbally when E. cannot see, or non-verbally when E. can see. Previous experiments have found no difference in the functions of the articles with respect to classes, and Experiment 7 did not note the non-verbal gestures accompanying the linguistic specification of one animal from a set of similar animals. Here there is evidence of an effect of the class membership composition of the array used.

All the preceding discussion has dealt only with the first utterances produced. However, as noted previously, when E was blindfolded, second utterances were often necessary to facilitate subsequent identification by E of the animal under consideration. Most children produced some subsequent utterances, and E removed the blindfold after each utterance to attempt identification based on the information just received. If an incorrect selection was made, the blindfold was replaced, and further speech elicitation, through repetition of the question, was undertaken. The determiners produced are shown in Table 31.

Table 31: Frequency and proportion of determiners used in second utterances when E was blindfolded.

	A	THE	OMISSION	THIS	THAT	TOTAL
Frequency	5	25	2	35	19	86
Proportion	.06	.29	.02	.41	.22	1.00

Since this part of the task was not conducted systematically, a description of the results follows.

This table shows that a great proportion of definite determiners produced in the second utterances were definite (<u>the</u>, <u>this</u>, <u>that</u>). Ninety-two per cent of all determiners were definite, <u>vs</u> 52% in the first utterances and this was the case across all classes of animals, i.e., there was little difference in the frequencies of determiners used to the different classes of animals. Table 32 shows the distribution of determiners in the second utterances to the different animal classes.

Table 32 : Determiners used in second utterances to different classes of animals.

	Singletons	Similar	Identical	Total
a	0	1	4	5
the	2	14	9	25
omission	0	1	1	2
this	0	23	12	35
that	0	14	5	19
Total	2	53	31	86

Singletons are poorly represented in this tables, since these unique objects tended to be adequately distinguished through their name alone in the first utterances, regardless of the article forms used or omitted. The utterances produced in subsequent responses, mainly incorporating some form of definite determination, were apparently aimed at aiding E.'s correct identification of the specific animal. Some of the utterances produced were fairly lengthy and specific, for example, "the black cow sitting down", referring to one of two similar cows, one sitting and one standing; "the one with red on it", referring to a small paint flaw on one of a pair of identical ducks; and "the one near the first one", the child using spatial location to identify one of two identical ducks, "the first one" referring to the previously identified unique singleton. In utterances such as these, the definite article is not being used as a deictic marker (commonly noted in the form the + N), but as an exophoric descriptor. The child is seeking to uniquely identify a specific animal, and thus uses his linguistic resources to link the context with the language he uses.

The discussion has focussed on the article forms produced and their

proposed functions so far, and it now seems timely to discuss the use of the demonstratives. The demonstratives were produced in great frequencies in second utterances, although both this and that were produced in the first utterances in both conditions. Table 33 shows the distribution of demonstratives in both conditions and according to the animal class. No instances of a demonstrative occurred when there was a singleton being referred to, either in the first utterances in either condition or in the second utterances (see Table 31).

Table 33 : Frequency of this and that to identical and similar class members in both conditions.

	Identical		Similar		
	This	That	This	That	Total
Condition 1					
E. Seeing	0	11	0	3	14
Condition 2					
E. Blindfolded					
1st utterances	3	5	2	3	13
2nd utterances	23	14	12	5	54
Total	26	30	14	11	81

When E. could see, there were no occurrences of the word this, and 14 instances of that, mainly to animals that were identical. All occurrences were accompanied by a nonlinguistic pointing gesture to the relevant animal. It appears that the children, instead of using the + N to deictically identify the animal under consideration, use the demonstrative that plus a point.

When E. was blindfolded, again with first utterances and across

both classes, that occurred more frequently, although this did occur five times. Neither demonstrative is appropriate in this condition, since E. could neither see the array nor the pointing gesture (which is assumed to accompany the utterance). Specification using these terms required E. to explain that she could not see the array in an attempt to eliminate the need for nonlinguistic gestures and to place more reliance on the verbal message.

Second utterances produced many more demonstratives, especially to identical class members. They were almost all inadequate in terms of conveying the maximum information for subsequent identification by a blindfolded experimenter. The major types of response were as previously reported, with non-verbal gestures carrying the burden of the message. These non-verbal gestures could be sensed by E., especially when objects were picked up and thrust under E.'s nose, in an attempt by the child to get E. to see the object. The non-verbal gestures accompanying the use of the demonstratives seem highly specific and consistent, and Chapter 4 will discuss this in more detail.

In general, when E. was blindfolded, there were more first utterances of the kind that + N or that + one, plus a point, and second utterances of the kind this + N or this + one plus some attempt to show the object to E. Again when E. was blindfolded, the majority of the demonstratives were elicited when the object under consideration was identical to another, while some were elicited by similar objects. The singletons elicited no demonstratives.

In conclusion, the two conditions of this experiment elicit the proposed article forms in the first utterances. The definite article

is being used deictically in the majority of instances, the indefinite article is being used to name the objects,while the article is also omitted - although less frequently when E. is blindfolded.

An interesting observation was made with respect to the children's differntiation of individual members of multi-membered classes of similar animals. A perceptual distinction is clear, and the child seems capable of using this distinction and translates it verbally when E. could not see. When E. could see, a nonlinguistic pointing gesture accompanied the deictic use of the definite article when this form was produced.

When second utterances were produced in the blindfolded condition, over 90% of them were with a definite determiner. The definite article was being used as an exophoric descriptor, tying in the context to the language produced. These descriptions enable accurate subsequent identification. The demonstratives were also produced with great frequency in this part of the task - <u>that</u> being used deictically, but not enabling correct identification, since no spatial contrast was involved. <u>This</u> occurred often, again inaccurately, together with an attempt by the child to get E. to actually see the object.

3:5 Concluding remarks to the production experiments

Throughout the last four production experiments (i.e. Experiments 5 - 8), five major variables were considered. These variables and their intended effects (either specific article functions or general form/ function variations) were listed in section 3:1. The five variables are:

1. Naming of the objects.
2. The question form used - either specifying the action or not.
3. Hidden vs. visible arrays.
4. Class composition of the arrays.
5. Blindfolding the experimenter.

The major finding from all these experiments is that the form of the question asked to the child, i.e. whether or not it specified the action in the verb, influenced the subsequent forms and functions of the determiners.

In almost all instances of action specification in the verb, the was used deictically, a was used for naming or an article form was omitted in the utterances produced by the children. The relative frequencies of occurrence of each of these forms varied, though omission tended to be the most common response. In Experiment 7, after the animals had been named, the naming function of the indefinite article never occurred, suggesting an interactive effect of naming and the use of a visible context, since in Experiment 5 this function of the indefinite article was relatively frequent. In Experiment 8 an effect due to class membership was evidenced in the blindfolded condition. Singletons and identical animals elicited the previously mentioned article forms and functions, and similar animals elicited

the naming function of the indefinite article and article omission. However, the perceptual differences between similar animals were conveyed linguistically by the children through the use of a descriptive sentence incorporating the definite article in its exophoric function.

Do questions elicited the in its exophoric function, mainly after the animals had been named, and a in its generic, indefinite function, mainly after the objects had not been previously linguistically identified. Second utterances in Experiment 8 were almost all with some form of definite determination, the functions of which were described previously.

In conclusion it can be proposed that the definite article and the indefinite article are used differentially by three year old children, and that the articles do indeed have different functions dependent on variations in the eliciting context. Also, each article has, by this stage, two uses, one being more sophisticated than the other. The choice of article depends on the context of the procedure, the task requirements and how the child views them, the linguistic variations and the sentential construction used by the child. The tasks used here show all these rudimentary functions of the articles and how the child uses them in communication. Variations of usage within a procedure depend on how the child viewed that task, although in general, a main trend dependent on the question posed, together with the variations in cognitive context and whether or not the children named the objects, is apparent.

In resumé, a summary of the functions of the articles and the experiments (and hence the precise contexts) in which they occurred

is below.

The definite article is used:

1. as a weak deictic adjective for description, indicating an object with a certain spatio-temporal location which is currently under joint focus of attention. This weak deictic use always follows specification of the action by the experimenter. This use was evidenced in the form the + N in all cases, but for all instances recorded, a similar number of occurrences of the indefinite article for naming and of article omission were also noted. This would indicate that the choice of the article was not wholly dependent on verb specification, nor on whether the objects were always visible or hidden, but on how the child viewed the task. The different article uses were dependent on how the child interpreted the whole situation including the social, linguistic and cognitive aspects of the task. The deictic use of the definite article was always found after verb specification, viz. in Experiments 5 and 6, where a Hide question was posed, Experiment 7 (where a Knock over question posed) and Experiment 8. In this last experiment, only the first utterances are considered, and there is a class membership aspect to be considered. When E. was blindfolded, only singletons and identical animals were referred to in this manner, whereas all classes of animals elicited this article function when E. could see.

2. on a slightly more sophisticated level, as an exophoric descriptor, which is a more specific use, taking into account contextual variations and relating visual distinctions to the linguistic ability of the child. The use of the definite article as an exophoric descriptor is usually seen in the child's utterance being of the form the + adjective + N, or N + verb + the + N in a descriptive sentence. This function

of the definite article was found when there was no verb specification (i.e. after a Do question) and also a constant visual array. The specific procedures eliciting this function are Experiment 7 where the child first named the objects, was asked a Do question and also, again in Experiment 7, after a Do question when there was no naming.

As indicated previously, the question form used in these procedures is influencing the form of the response and hence the article form and function preferred, as whether or not the action was specified in the verb of the request question is the variable that is producing the different uses of the definite article.

In Experiment 8, examples of the exophoric definite article were recorded, but only when E. was blindfolded. This use only occurred when reference was being made to one of the two similar objects. There is thus an effect of class membership. Second utterances were also recorded in this condition, and the exophoric use of the definite article was noted to all classes of objects except singletons.

The indefinite article is used:

1. for naming. This is fairly straightforward and at this stage is expressed as a + N, together with a deictic gesture (under some circumstances). Statements of the kind that's a + N also occur - a more specific linguistic way of naming. The naming function of the idenfinite article was seen not only when the child was specifically requested to name objects, but also when the child chose to name the objects.

As well as eliciting the deictic use of the definite article. Experiments 5, 6, 7 and 8 elicited a number (though varying in

relative frequency) of responses where the indefinite article was used for naming. The contexts for the elicitation of this function seem also to require verb specification and are the same as those listed for the deictic use of the definite article. However, similar objects in Experiment 8 when E. was blindfolded which elicited the exophoric function of the definite article, also elicited the naming function of the indefinite article. It is apparent that the perceptual features and the need to convey the visible distinctions to the blindfolded experimenter resulted in these functions occurring.

2. to mean <u>any</u>, the indefinite or generic function. There are examples of this use where the child is not naming the objects but the indefinite article is incorporated within a sentence. This use of the indefinite was found in Experiments 6 and 7, where there was no prior naming, a Do question, with a hidden context in the former and a visible context in the latter. In both, the form elicited was <u>Actor/pronoun + verb + a + N</u>. There is some evidence to suggest that not specifying the action results in the child supplying a full sentence, with the non-visual array exerting a stronger influence over the likelihood of this function, as in the visible context, the exophoric function of the definite article also occurred with an equal frequency.

Article omission was evidenced throughout these experiments, and in some instances was as common, if not more common, than the other two forms. The contexts where an article form was frequently omitted do not bear much resemblance to one another, except that the verb of action was specified in the question form used by E. The tendency to omit was weaker when the verb form required the child to respond with a full sentence, i.e. when a Do question was posed. Experiments 7 and 8 led to the most frequent omission (relative to other article

forms), and in both cases the objects were not named by the children first, the array was visible and the action verb was specified. Experiment 6 similarly indicated that omission was the most common form, this time with a hidden array. Otherwise, similar experimental conditions prevailed. In Experiment 5, where there was prior naming, and in Experiment 8 where E. was blindfolded, the frequency of article omission decreased relative to the other article forms.

The nature of the question posed (Variable 2) seems to have the most powerful influence over the child's article usage, rather than naming (Variable 1), the visibility of the array (Variable 3), the class composition of the array (Variable 4) or whether or not the experimenter is blindfolded (Variable 5). After the action had been specified in the verb of the request posed, typically the child either just names the object under consideration with the indefinite article or uses the definite article to indicate the object under joint focus of attention. Frequently, also, the article is omitted. Variations in the action verb used, resulting from variations in the visual context, made no difference to this trend. The form of the utterance was typically $\pm$ Article + Noun. After the action was <u>not</u> specified, a full sentence was usually produced, the child supplying an article form. Because of the insertion of the article form into a sentence, its function changes - the indefinite is being used in its generic sense (e.g. I want <u>a</u> (=any) pencil), while the definite artucle is being used exophorically (e.g. I want <u>the blue</u> pencil), a descriptive statement linguistically specifying a precise object in the visual context. These notions relate to adult usage of the articles after similar question types, but it is important to realise the sensitivity of the three year old child to different contexts and different linguistic inputs as reflected by his subsequent article use.

Chapter 4 Use and understanding of the demonstratives.

4:1 Introduction

In Chapter 1, the following question was asked - Are the demonstratives and the contrast between them a prerequisite to the acquisition (appropriate use and understanding) of the articles, particularly the definite article? Thus a basis for the experimental procedures to be presented and discussed in this chapter is formed. The demonstratives are deictic words, and when used contrastively refer to spatio-temporal distances from a central reference point, usually the speaker. This indicates a point relatively near to the speaker, while that indicates relative distance from the speaker. That also has a non-contrastive sense to situate a referent (either visible or previously known linguistically) within a current context. However, it is on the contrastive function that most studies have focussed.

Various studies have considered how young children come to understand the contrast between these words based on expected adult use of the terms, e.g. Clark, 1978; Clark and Sengul, 1978; de Villiers and de Villiers, 1974; Wales, 1979; and Webb and Abrahamson, 1976. Comprehension is typically assessed through the child's accurate location of an object close to the speaker in response to this and an object relatively more distant from the speaker in response to that. The speaker can have either the same perspective as the child, hence nearer the speaker means also nearer the child, or can take the opposite perspective, where nearer the speaker typically means further from the child, To accurately locate objects through the use of this and that (together

with no non-verbal cues), a child must be able to appreciate the speaker's point of view, and thus must no longer be tied to his own perspective. In other words, the child must no longer be egocentric, unable to take the other perspective. There is some controversy in the literature over how and when the child can understand these words in terms of their relative spatial location, but there is no doubt that young children (with imprecise age limits, as there is debate over the age) cannot understand these terms and that, with age, they apparently can. Clark (1978) provides a useful summary of the area, systematically examining deixis from the developmental point of view, considering mainly evidence from comprehension studies.

However, nowhere has the relationship suggested by Lyons (1975, 1977) between the article system and the acquistion of the demonstratives been systematically investigated. The tasks to be presented here were therefore devised with two separate, but closely related aims:

1. to further increase already available knowledge of how the child comes to make the distinction between the words this and that.
2. to discover what relationship, if any, exists between the demonstrative and the article systems in the three year old child.

With respect to the second aim, it has already been suggested that the article system is neither stable nor contrastive at the early age under study. It is apparently valid to suggest the existence of such a relationship between the definite article and the demonstratives. Questions that need to be asked include these: As the definite article has been shown to have a weak deictic use, to what uses does the young child put this and that? How does the young child distinguish the location of objects based on relative proximity to

the speaker? Can the young child use these words accurately? Can he understand an adult's use of these words? Which brings us back to the first aim. Most previous research has concentrated on the child's understanding of the terms this and that, either longitudinally, cross-sectionally or cross-culturally. Proposals as to the child's development of competence with these terms are made with respect to the children's nonlinguistic performances. That is, comprehension of the linguistic terms is assessed through recording the object selected by the child in response to a demonstrative in the verbal instruction. The object is part of the presented array which represents the cognitive content of the verbal utterance. Various experimental manipulations, such as altering the array, altering the relative positions of the adult speaker and the child, have been undertaken to see if, and at what age, the child can appreciate not only the distinction between the words, but also the spatial factor, based on taking the speaker's point of view. No non-verbal cues emanate from the speaker (the experimenter) in these tasks, as one is wishing to assess the young child's comprehension of the linguistic terms only. Various different conclusions have been reached, based on the child's ability, or inability, to appreciate another person's point of view, and how this ability develops with age.

The research to be presented here attempts to find out how children can use and understand the demonstratives. But these experiments are to be seen in the broader perspective of trying to see if the child is operating with some integrated system of determination, particularly with respect to the definite article and the demonstratives.

Theoretically a stable and contrastive system of demonstratives must be understood and used prior to the establishment of a stable article system, since the use of the definite article stems from the mastery of the uses of the demonstratives. Whether full mastery of this and that is to be found at the early age of three years remains to be seen, but what will emerge will be more evidence to support the hypothesised development of the system of determination in English.

The subjects used in these experiments were from a similar population as those who performed the article experiments, and the same guidelines were adopted with respect to the selection of subjects and procedures in the experiments. In the comprehension studies, a small sample of five year old children participated. I would like to thank the staff and pupils of Great Milton Primary School for their co-operation. The older children were included in order to see if the comprehension task used in Experiment 10 was more meaningful for these children, and also to regard the findings within a broader developmental framework.

4:2 Demonstrative production

4:2:1 Introduction

The use of the demonstratives has already been referred to in the previous chapter, and the experiments presented there gave some indication of the uses to which these words were being put (see particularly Experiments 6 and 8). The single production experiment to be reported here confirms the observed production abilities of the three year old child.

However, very few other studies have considered the child as speaker, i.e. the child's production of this and that. Wales (1979), in a paper devoted mainly to the child's understanding of deictic words, briefly considers the use of deictic speech, together with deictic gestures (such as pointing, object handling etc.) in mother-child interactions. Although not specifying any direct relationship between the deictic terms (this, that) or the articles (the, a) and the gestures noted, i.e. whether any specific gesture is linked to a particular expression, it is clear,certainly for mothers and young children, that these linguistic terms are closely integrated with forms of gesture. Indeed, many of the expressions, for their accurate comprehension, require such 'gestural support'. Thus, to study the young child's use of this and that, the accompanying gestures need to be studied. The present study therefore seeks to examine both the verbal and the non-verbal responses in a task designed for the production of deictic terms.

Both the de Villiers' (1974) and Webb and Abrahamson (1976) included one production experiment in their studies. The de Villiers' asked

each child (aged between 2 1/2 and 4 1/2 years) a forced choice question, *viz*. "Is the candy on *this* side of the table or on *that* side of the table?". The experimenter sat either beside or opposite the child, and the results indicated that *this* and *that* were less often correctly used by the child when the experimenter sat opposite him or her. The results from this single production experiment are not taken into account in the de Villiers' subsequent discussion and conclusion, so their role in the study is unclear. In Webb and Abrahamson's (1976) study, the children made two free requests to two conveniently located candies. These requests were generally (43%) found to be *bipolar* and *this* was used for the near candy on one trial, while *that* was used for the more distant candy on the other trial. Of the 42 responses containing *this*, 40 referred to the near candy, while of the 78 responses containing *that*, 55 referred to the far candy. To also use *that* in its unmarked sense, accompanied by a point, to refer to the near candy on at least one trial, is appropriate, and 17 children did just that. However, like the de Villiers', their discussion does not consider this experiment in any depth.

Since there has apparently been no systematic attempt to study the young child's production of *this* and *that*, together with the accompanying gestures, the following experiment was devised. The situation has to be made as free as possible from constraints to allow for the production of both terms, plus, if relevant, the accompanying gestures. Spatially separated objects have to be used, with relative locations near to and far from the child as speaker in order to assess the use of the terms contrastively. In the experiments on article production, it was noted that when the young child is handling an object close to himself, he uses *this*, while when handling an object and proffering it away from himself, he uses *that*. *That* also occurs in its unmarked, non-contrastive sense,

together with a pointing gesture to the relevant location.

Experiment 9 therefore considers the use of this and that both in relation to spatially separated objects and in relation to the child as speaker. In adults, both aspects coincide, since this refers to the close relative proximity of an object to the speaker, while that, used contrastively, refers to an object relatively more distant. The accompanying gestures used by the children were also noted throughout the task.

4:2:2 Experiment 9 [1].

Aim: To elicit from children the use of the contrasting demonstratives this and that, based on verbal responses to instruction questions, coupled with the child's nonlinguistic choice of an object. The instruction questions referred to certain objects, one at a time, each object having a certain spatial location, relative to both the child and the adult. It was hypothesised that an object nearer the child would be referred to with this, while an object further away from the child would elicit the contrasting term that. From previous production tasks, it seemed that the child, having the object in his hand and near to himself, tends to use this, while when proffering the object, i.e. holding it away from the self, or when pointing to an object with a distant spatial location, he tends to use that. This experiment systematically examines these contentions.

Method: Two sets of model animals were used, and these are shown in Figure 4.

Figure 4 : Material employed in Experiment 9.

Set 1	Set 2
Brown horse	White horse
Lying down cow (black)	Standing cow (black)
Orange cow	Brown cow
White sheep	Black sheep
Striped pig	Pink pig

Two different conditions were undertaken, and in Condition 1, one

1. This experiment was reported in Garton, 1980.

set of animals was lined up on the table near the child, with the other set arranged behind it, the animals being in one-to-one correspondence. In an alternative arrangement (Condition 2), one set of animals was placed randomly on the table in front of the child, while the other set was likewise arranged, but located on a small table beside the child.

In Condition 1, half the subjects had E. sitting opposite them (Condition 1 (a)), and half had E. beside them (Condition 1 (b)). The relative positions of the two rows were varied so, for example, with reference to the pink pig, it could be located either in the row nearer the child or in the row further away. Likewise in Condition 2, the relative locations of the two sets, either on the table or beside the child, were varied. Condition 2 (a) had E. opposite the child, while Condition 2 (b) had the child and E. seated at the same side of the table.

The child was told that he would be asked a question and would be required to tell E. which animal was being talked about. One question was asked per animal, making a total of 10, the order remaining constant across children, since the initial order was determined by the use of a random numbers table. E. varied her position systematically, sitting either opposite the child or beside him for all 10 questions. The 10 questions asked were:

1. Which pig is pink?
2. Which cow is lying down?
3. Which horse is white?
4. Which sheep is white?
5. Which cow is striped brown and white?
6. Which cow is standing up?

7. Which sheep is black?

8. Which pig is black with a pink stripe?

9. Which cow is orange?

10. Which horse is brown?

The children were encouraged to say which animal was being referred to by the directing question, but handling of the animals and pointing were not discouraged. All children located the intended referents with ease and most of the responses received were verbal, and of these the majority combined verbal and non-verbal responses.

Procedure: Each child was tested individually in the child study laboratory of the Department of Experimental Psychology, University of Oxford by a female experimenter. Tested was commenced after a period of familiarisation between the child and E.

Subjects: 20 children (9 male) of mean age 3:7 (age range 3:1 - 4:1) served as subjects. 19 children responded adequately throughout, but one child was totally unco-operative during the entire session. 8 children received the Condition 1 task, while 11 received Condition 2.

Results and Discussion: The results are presented in terms of the frequency of verbal and non-verbal determiners used to the ten questions asked in relation to the arrangements of the two sets of animals and to the position of E. The determiners elicited were the two demonstratives this and that, the locative there and the nonlinguistic gesture of location, the point. These are considered separately at present, and are shown in Table 34.

Table 34: Frequency of verbal and non-verbal determiners (separately) with respect to the four conditions and the question.

Condition 1 (2 rows on table)

	(a) E opp C (n=4)				(b) E beside C (n=4)			
Questions	That	This	There	Pt	That	This	There	Pt
1	3	0	0	1	4	0	0	0
2	3	0	0	0	4	0	0	0
3	3	0	1	0	2	0	0	2
4	2	0	1	1	4	0	0	0
5	1	0	0	3	4	0	0	0
6	3	0	1	0	4	0	0	0
7	3	0	0	1	3	1	0	0
8	4	0	0	0	3	0	0	1
9	4	0	0	0	4	0	0	0
10	3	0	0	1	4	0	0	0
Total	29	0	3	8	36	1	0	3

Condition 2 (2 sets separate)

	(a) E opp C (n=6)				(b) E beside C (n=5)			
Questions	That	This	There	Pt	That	This	There	Pt
1	3	3	0	0	2	3	0	0
2	0	6	0	0	2	2	1	0
3	4	2	0	0	3	2	0	0
4	3	3	0	0	3	2	0	0
5	4	2	0	0	2	3	0	0
6	5	1	0	0	1	4	0	0
7	3	3	0	0	3	2	0	0
8	3	3	0	0	0	5	0	0
9	2	3	1	0	3	2	0	0
10	6	0	0	0	2	3	0	0
Total	33	26	1	0	20	29	1	0

T tests revealed significant differences in the frequencies of <u>that</u> between Conditions 1(a) and 1(b), ($t = 4.11$, $df = 18$, $p < 0.001$), between Conditions 2(a) and 2(b), ($t = 4.48$, $df = 18$, $p < 0.001$) and between Conditions a(b) and 2(b), ($t = 8.8$, $df = 18$, $p < 0.001$). These statistics indicate that there were slight differences in the frequencies of <u>that</u> depending on the position of E ((a) vs (b) in both Conditions 1 and 2), and also depending on the relative positions of the objects, but only when E sat beside C (1(b) vs 2(b)).

Considering the word this, only Condition 2 is considered, since one response was recorded in Condition 1. A t test revealed no difference between Conditions 2(a) and 2(b), so the position of E made no difference. However, clearly there were many more instances of this in Condition 2. The number of instances of there and of a point alone is too small to be analysed statistically but it should be noted that all instances of a point alone occurred in Condition 1, eight in 1(a) and three in 1(b), while the uses of there occurred relatively rarely throughout, with three such responses being produced in Condition 1(a), and one each on Conditions 2(a) and 2(b).

This analysis has considered only the linguistic behaviour of the children and the nonlinguistic genstures when they occurred separately from each other. However, many verbal utterances were accompanied by nonlinguistic gestures. Table 35 shows the frequency of this and that, together with the accompanying gestures for Conditions 1 and 2, and for the positions of E.

When the two rows were on the table (Condition 1), most utterances contained the word that. When E was beside the child, all were of the form that one, 33 accompanied by a nonlinguistic point, and three accompanied by the child picking up the object. Only one example of the word this occurred in Condition 1, E beside the child. The uttered form was this one, together with a point to the required object. When E was opposite the child (Condition 1(a)), 18 instances of that one occurred, 18 with an accompanying point, while 10 involved the child holding the object up and showing it to E. There was also a single instance of the word that together with a point.

The uses of that, depending on the relative position of E were also

Table 35 : Combined verbal and non-verbal responses in Experiment 9 (*this* and *that* only).

	Verbal utterance	n	Non-verbal gesture	n
Condition 1				
(a)				
E.opposite C	that one	28	+ point	18
			+ hold and show	10
	that	1	+ point	1
(b)				
E. beside C	that one	36	+ point	33
			+ pick up obj.	3
	this one	1	+ point	1
Condition 2				
(a)				
E.opposite C	that one	33	+ point	14
			+ hold and show	19
	this one	26	+ pick up obj.	26
(b)				
E. beside C	that one	18	+ point	16
			+ hold and show	2
	that	2	+ point	2
	this one	29	+ pick up obj.	17
			+ point	12

very similar when one set of objects was on the table and the other was beside the child (Condition 2). When E. sat beside the child most (16) of the uses of *that* were of the form *that one* plus a point, two were *that one* plus holding and showing the object, while the other two instances were of *that* alone plus a point. When E. was opposite the child, all 33 instances were *that one*, 14 including a point and 19 including holding and showing the object. This action of holding and showing the object to E. predominantly occurred when E. sat opposite the child in both Conditions 1 and 2.

Turning to examine the occurrences of *this* when the two sets were apart, there were 29 instances when E. sat beside the child. 17 of these were *this one* plus a picking up of the object, while the

remaining 12 were of the same linguistic form plus a point to the object. When E. was opposite the child, all 26 instances were of the form this one together with a picking up of the object and handling it.

It appears that having E. opposite the child makes the child proffer the handled object more and use that one, while having the two rows separate involves the child using both forms of demonstrative, together with different accompanying nonlinguistic gestures. That is accompanied by a proffering of the object or a point, while this is accompanied by a simple picking up and handling of the object, no showing or proffering being undertaken.

As yet, it has not been ascertained to which aspect of the array the differential uses of the demonstratives are being put. Are the instances of that one being used to refer to objects in the array further from the child? Which array, when the two are separate, is eliciting the instances of that one and which is eliciting this one? There seems to be no clear-cut distinction being made and Table 36 shows the results.

Table 36 : Spatial location (near/far) from child to which the demonstratives, this and that, refer.

Condition 1		
E.opposite C .	that (one)	15 - near row
		14 - far row
E.beside C.	that one	19 - near row
		17 - far row
	this one	1 - far row
Condition 2		
E.opposite C	that one	17 - beside C
		16 - on table
	this one	13 - beside C
		13 - on table
E.beside C	that (one)	11 - beside C
		9 - on table
	this one	14 - beside C
		15 - on table

Of the 36 instances of that one recorded in Condition 1(b), (two rows of objects on the table; E. beside the child), 19 were used with reference to the row nearer the child, while 17 referred to the more distant row. Almost all occurrences were accompanied by a pointing gesture, so there is no differentiation being made either linguistically or nonlinguistically. Similarly when E. sat opposite the child (Condition 1(a)), of the 29 instances of that (one), 15 were made with reference to the nearer row and 14 to the more distant row. Again, the non-verbal gestures accompanying the demonstratives were divided between the two locations. In terms of adult linguistic distinctions, the child appears to fail to appreciate any difference in the usage of the demonstratives between different spatial locations. The use of that in its unmarked sense, plus a point, would be appropriate to refer to an animal in the near row (as well as in the far row, cf. Webb and Abrahamson, 1976), but the children were using the same linguistic and nonlinguistic devices across all situations. The only difference that did occur was when E. sat opposite the child and some of the verbal utterances were accompanied by a holding of the objects. This, however, was seen with objects in both rows. The one instance of this one was made with reference to the more distant row.

In Condition 2, when one set of objects was placed on the table and the other was located beside the child, again no immediate pattern to demonstrative use occurs. When E. was sitting beside the child, 18 occurrences of that one were recorded, and 2 instances of that. Of the 20, 11 referred to an animal located beside the child and 9 referred to an animal on the table. As in Condition 1 (b), here (Condition 2 (b)) most instances were accompanied by a point, the child making no linguistic nor nonlinguistic differentiation

of location.

When E. sat opposite the child (Condition 2 (a)), 33 instances of that one were recorded, 17 with reference to the animals beside the child, and 16 to animals on the table. As before, the non-linguistic gestures, although divided between a point and a proffering gesture, were not related to the two different locations.

Examining the uses of this one in Condition 2, when E. sat beside the child, 29 occurrences were recorded. Of these, 14 were to objects beside the child and 15 to objects on the table. The nonlinguistic gestures were also evenly divided, except that 8 of 12 points recorded were to objects beside the child. When E. sat opposite the child, all 26 instances of this one were accompanied by handling of the object and an equal number of instances (13) were recorded to each set location.

In terms of adult usage of the demonstratives, the child is apparently not making a distinction based on proximity of the object to himself as speaker. But it has been shown, particularly when the objects are spatially separate, that the child is using both terms, so on what is he basing his distinction? When the two rows were on the table (Condition 1), that accompanied by a point was the most frequent response, typically in the form that one. This use is similar to the weak deictic marking use of the definite article, used to indicate an object with a certain spatio-temporal location. The name of the animal is being replaced by the term one. E. had already named the particular animal and the child is simply affirming that there is such an animal. In this respect, it would appear that the three year old child is using the weaker sense of that

and not contrasting it with this to distinguish objects in terms of relative spatial location.

However, when one set was beside the child and the other was on the table, some distinction is certainly being made, based not on the proximity of the objects with respect to either E. or the child, but on some property of the object's proximity to the child's own body and the action being performed. The instances of that one plus a point, seen in all conditions, but particularly when E. was sitting beside the child suggest the weak deictic use of that, based on the absolute location of a specific object. However, the occurrences of that one together with a holding and proffering gesture, seen more frequently when E. was opposite the child, are suggested to be evidence of the child beginning to master a rudimentary contrastive system, with the child as the central reference point. while he is performing a certain action upon the object. Further evidence for this comes from the instances of this one that were recorded. This form occurred mainly when the sets were physically separate and regardless of the location of E. The accompanying holding and showing of the object did not involve proffering the object, but instead the child typically manipulated the object close to himself. This was seen especially when E. was sitting opposite the child.

In conclusion, it is hypothesised that under certain situations, the child is beginning to use a contrastive system of determination, with the centre of the system being the speaker (in this case, the child), but the distance of the object from that central point being closely confined within certain limits. With the out-stretched hand to a distantly located other person, that one is permissible, while maintaining the object in the hand but keeping it

near the self constitutes the use of this one. When E. was located beside the child (i.e. holding the same perspective instead of the opposing one), different rules applied. Either this one or that one plus a point specified the object - the choice of demonstrative adjective not being based on relative location.

Therefore, the contrastive system, such as it is, was used more noticeably when the two sets of objects were spatially separated, rather than being in two rows on the table. Thus in certain situations, the three year old child is using a limited system of contrast between this and that, while other situations indicate the use of non-contrastive that. The former is important since the child has already established himself as the centre of some form of deictic system, but this system must be extended outwards from the centre before adult usage is attained. The latter function of that is also important, since it provides the link (as proposed here and by Lyons, 1975, 1977) between the demonstratives and the definite article. It is from this non-contrastive use that the definite article and its functions derive, and it has been shown that the three year old can indeed use this term in its deictic sense.

4:3 Demonstrative comprehension

4:3:1 Aims of Experiments 10, 11 and 12

As was noted in section 4:1, the use and interpretation of the deictic demonstratives this and that are dependent on an interplay of linguistic, interpersonal (i.e. social) and cognitive factors. Previous experimentation has sought to investigate the relevant factors needed for a full understanding of the terms, and how these factors develop and interact during a child's development. The studies to be reported here aim to show how various linguistic, cognitive and situational variables act to influence the child's interpretation of the linguistic terms this and that.

The tasks used for the investigation of the child's understanding of this and that are modifications of previous experimental techniques, where the spatial position of objects is varied, along with various speaker positions in relation to the object positions. Typically the child and speaker either sit side-by-side or opposite one another, with the objects positioned such that one is nearer the child than the other (only two objects being used). An intervening obstacle can be placed in between the two objects (de Villiers and de Villiers, 1974) or the relative distance of the objects from the child can be varied (Webb and Abrahamson, 1976). Other manipulations involve locating the child such that neither object is nearer, i.e. both are equidistant from the child. However, variations in the speaker position allow for one object to be nearer to him instead of the child (Clark and Sengul, 1978). Successful comprehension is judged by the choice of the appropriately located object with

respect to the speaker and the demonstrative used in the instruction to the child. Methodologically, therefore, the tasks devised here involved variations of the spatial context and also variations of the arrangement of the objects presented.

The aim of these procedures is to see if a contrastive system is being utilised by children of the ages of three and five years. No theory of demonstrative acquisition has been proposed by previous investigators. They have merely ventured hypotheses based on the results obtained from the different experimental manipulations. Such results may provide some evidence about what children do in an experimental situation.

The tasks to be presented here are undoubtedly experimental, since the spatial contrast inherent in the use of the two terms must be worked out solely from (1) the linguistic terms alone (i.e. no nonlinguistic gestures were used) and (2) the relative position of the speaker. The comprehension tasks each examined the effect of different manipulations of the context on subsequent comprehension of <u>this</u> and <u>that</u>. Unlike tasks to investigate article comprehension, tasks aiming to look at demonstrative comprehension are simple to construct. All one requires are two objects, one of which can be placed nearer the adult speaker than the other. The child is then positioned such that he can be beside or opposite the speaker or even such that the two objects are equidistant from the child's position. But even if the objects are equidistant from the child's position, one object is always placed nearer the speaker (<u>this</u> object) and one located further away (<u>that</u> object).

Experiment 10 was a standard demonstrative comprehension task. In using a circular table, various locations of the speaker relative to the child and of the objects could be investigated. The child had to select an object in response to requests containing the words this and that. Three and five year old children participated in this task and there should be evidence of an increase in the number of correct choices made (i.e. the object nearer the speaker in response to this, the more distant one from the speaker in response to that, regardless of the child's position) with an increase in age. The patterns of responding between the two age groups can also be examined.

Experiment 11 altered the social aspect of the comprehension task to a certain extent. Instead of the adult being the speaker, a model Farmer made the requests for this or that object. The child was therefore required to make judgements of spatial proximity and distance relative to a model 'speaker'. Also, in one condition a barrier was erected between the object near to the speaker and the object further from the speaker. This is analogous to the de Villiers' (1974) task, except that the child can see on both sides of the barrier. In the de Villiers' tasks, where the adult was the speaker, the child could see only the object on his side of the barrier (although he knew there was one on the other side too). The percentage of three year old subjects (around 80 - 90%) choosing the correct object in such a condition is higher than that found elsewhere. So a barrier condition was investigated in this experiment to see if it made any difference to the proportions of correct responses to this and that with three year old children only.

Finally, Experiment 12 studied the effects of training a small sample

of three year old children to appreciate the distinction (in terms of proximity) between this and that. Training was conducted with model actors and objects, and generalisation tasks (involving the adult experimenter as speaker) were conducted to assess the effects of training. The generalisation tasks were similar to those employed in Experiment 10, and by Clark and Sengul (1978), and the children

4:3:2 Comprehension experiments 10, 11 and 12

Experiment 10

Material: A circular table, 100 cm. in diameter, was used in this task, on which were placed, one set at a time, pairs of identical animals. Four pairs were used and these were: two dogs, two horses, two cows and two ducks. The animals were each placed on translucent discs, 13mm. in diameter.

Method: Two arrangements of the task were used, involving four different speaker positions, and two different object locations. In the first arrangement (shown in Figure 5), the child was seated at Ch., and the speaker at either B or C, both 45° from the child. The two identical objects were placed in the two translucent discs which were equidistant from the child. However, with regard to speaker position, one object was always nearer and one was more distant. In the alternative arrangement (shown in Figure 6), the speaker sat either beside the child (Ch.) at A or directly opposite the child at D. The objects were positioned such that one object was always nearer the child than the other, and similarly one was nearer the speaker.

Each child received instructions pertaining to the animals from all speaker positions. From each position, the speaker issued two instructions, one containing the word this and one, the word that. A different set of identical animals was used each time. For example, from position B, the speaker could utter "Make this horse jump up and down". The child would then make a selection from the two available identical animals, and perform the required action (an easy requirement). The animals would then be changed, and, for example, the instruction "Make that dog jump up and down" was

Figure 5 : Lay-out of material in Experiment 10 - Speaker positions B and C.
N.B. Diagram not to scale.

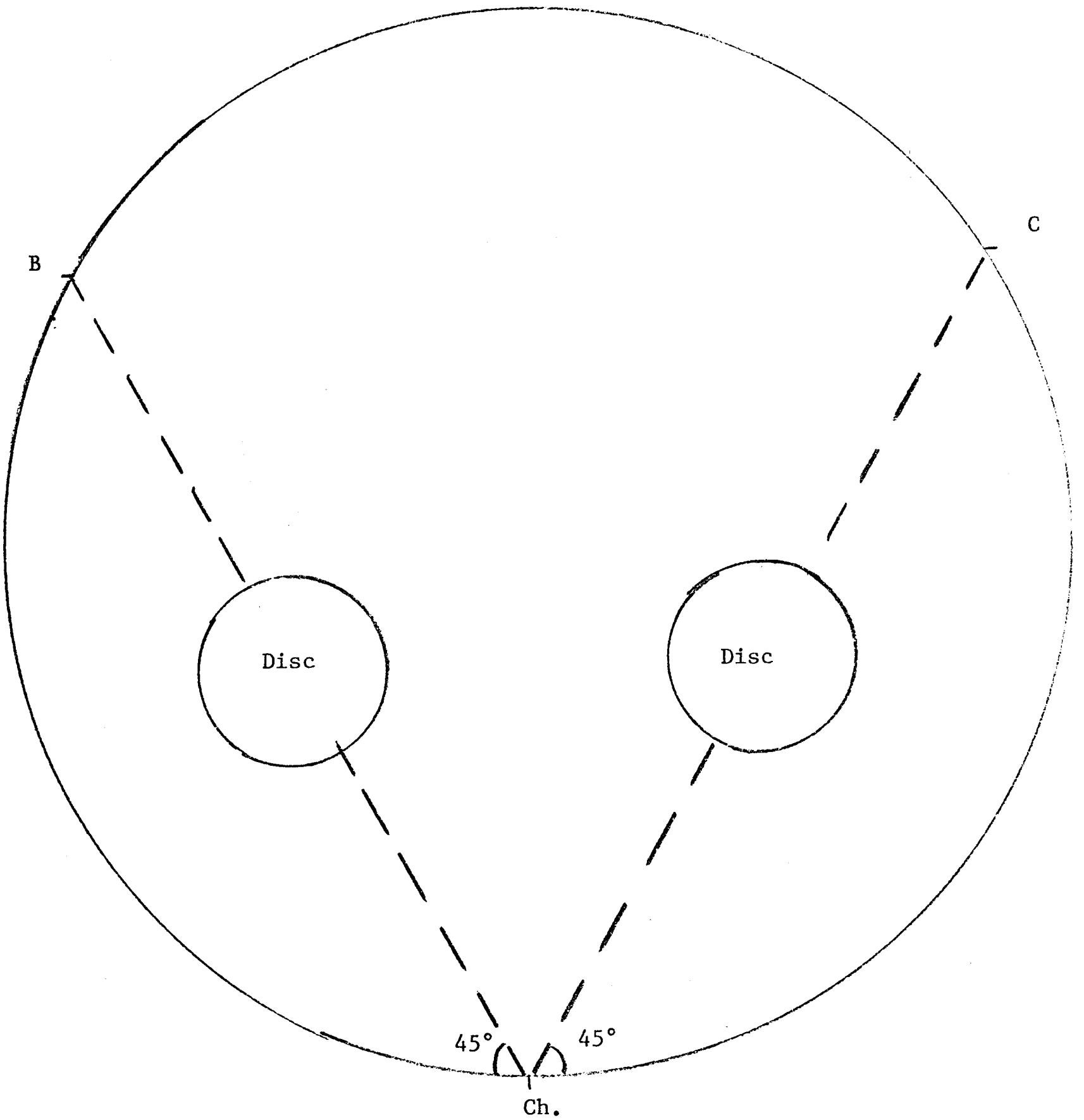
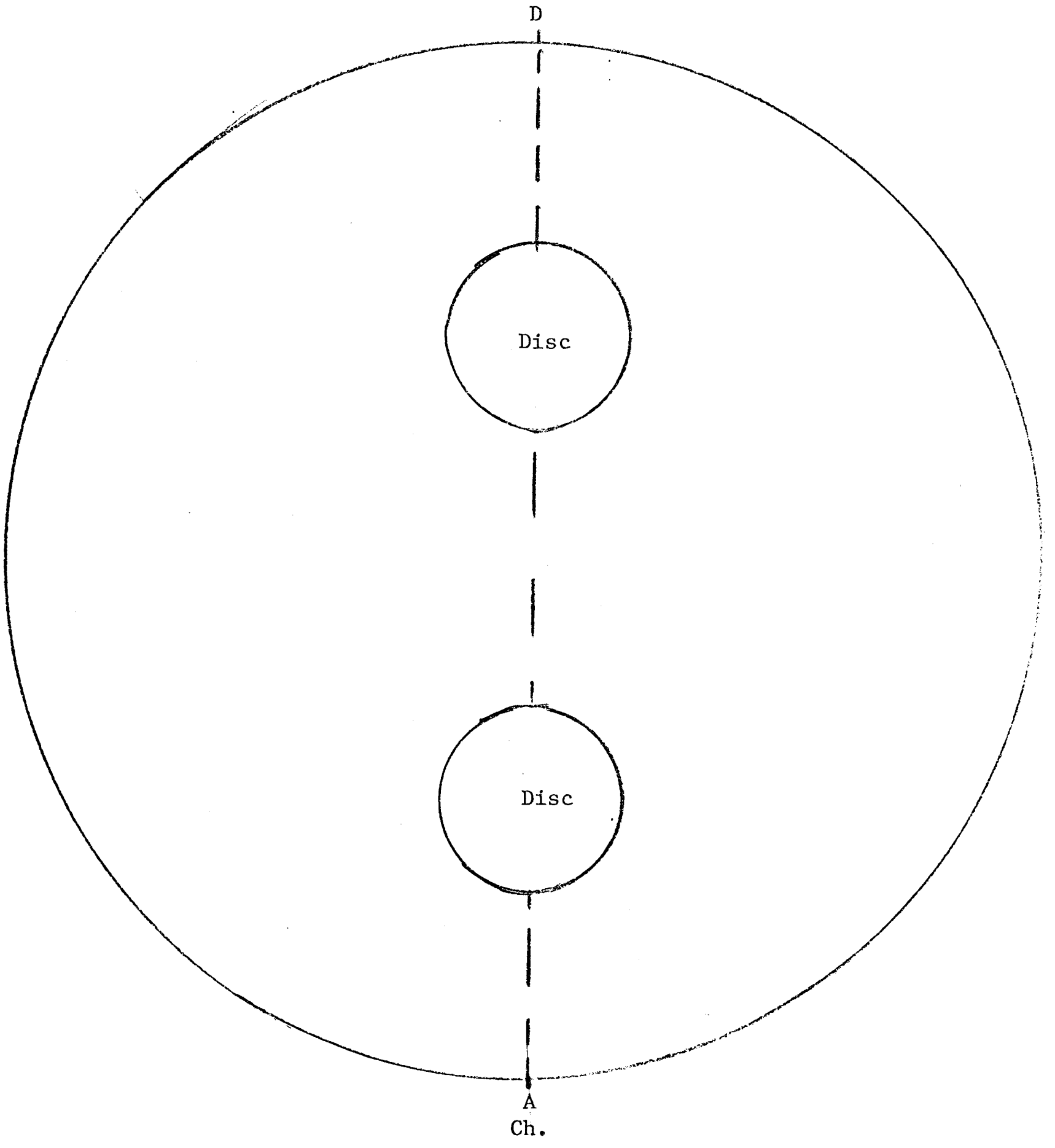


Figure 6 : Lay-out of material in Experiment 10 - Speaker positions A and D.
N.B. Diagram not to scale.



issued. Again the child was required to select an animal and perform the requisite action. After the two instructions from position B, E. issued similar instructions from position C. However, between the instructions issued from B and C, an intervening task was performed (either an irrelevant one or one involving perhaps the production of the articles). Likewise, an intervening task was performed prior to the presentation of the alternative arrangement. The children therefore received each demonstrative in an instruction from four speaker positions. The order in which the speaker positions were used was varied across children, and the order of mention of terms was also varied both across and within speaker positions. The association between term used, speaker position and animal pair was varied, but each child each received each animal pair twice during the entire experiment, with the only proviso being that the same pair did not occur twice in one speaker position.

Procedure: As in Experiment 9.

Subjects: 24 three year old children(14 male), mean age 3:6 (age range 2:11 - 4:1) and 12 five year old children (8 male), mean age 5:6 (age range 5:2 - 5:11) served as subjects.

Results and Discussion: As each child received the demonstratives only once from each speaker position, the proportions of children making the correct choices to *this* and *that* dependent on the position of the speaker can be calculated and are shown in Table 37. Only 18 out of the 24 three year old children gave scorable choices to all four speaker positions.

Table 37 : Proportion of children making the correct choices to *this* and *that* from all four speaker positions.

	3 year olds n=18	5 year olds n=12
Speaker at A (beside Ch.)		
this	.94	.92
that	.11	.00
Speaker at D (opposite Ch.)		
this	.00	.17
that	.89	1.00
Speaker at B (45° to left)		
this	.44	.50
that	.55	.58
Speaker at C (45° to right)		
this	.55	.75
that	.50	.17

Both quantitatively and qualitatively the results are best summarised by speaker position.

When the speaker was at A (beside the child), both three and five year olds performed better on *this* than on *that*, probably because the children tended to select the object nearer themselves. A 2x2 contingency test on the frequency of responses to both words for the two age groups revealed no significant differences.

When the speaker was at D (opposite the child), both groups of children performed better on *that* relative to *this*. Again this is probably due to the tendency to select the object nearer the child

himself, not taking the speaker's perspective into account. Both groups performed poorly with respect to this. Again a 2x2 contingency test revealed no significant difference between the performance of the two groups on the two words.

When the speaker was at B, opposite and 45° to the left of the child, with the circles and animals equidistant from the child, both three and five year olds performed better on that than on this. This is likely because of a tendency to select the animal to the child's right, this tendency being confirmed with evidence from the performance when the speaker was at position C. However chi square is very low and not significant, suggesting that the effect of going to the right is not very strong for either age group. In going to the right, that would appear to be correct, while the selection of the object in the right-hand position with respect to this would be incorrect.

When the speaker was at C, opposite and 45° to the right of the child, both groups performed better on this. It would appear that the effect of having the speaker on the right enhanced any response bias that might exist, as very few choices, particularly by five year olds, were made correctly (i.e. to the left) in response to that. However, a 2x2 contingency test revealed a non-significant difference between the performance of the two groups on the two words, although the five year olds seemed unable to correctly choose from the left-hand side in response to that.

The response patterns for the two age groups for choices made from the four speaker positions are shown in Table 38.

Table 38 : Response patterns evidenced in Experiment 10 - Speaker at B and C, A and D.

	Speaker at B		Speaker at C	
Patterns [1.]	3s	5s	3s	5s
Towards right	9	6	9	6
Towards left	7	5	8	1
Alternate	2	1	2	3
Total	18	12	18	12

	Speaker at A		Speaker at D	
	3s	5s	3s	5s
Towards self	16	11	16	10
Away self	1	0	0	0
Alternate	1	1	2	2
Total	18	12	18	12

1. The categories Towards right, Towards left, Towards self, Away self, refer to the child selecting the object in that spatial location relative to himself. Alternate refers to the child selecting a different object for each instruction, though the choices were not necessarily correct.

The response patterns reveal that the children of both ages tended to choose the object nearer themselves when the speaker was at A or D and one object is nearer the child than the other. This has already been discussed and was noted in Table 37. When the speaker was at B, half of each age group tended to go towards the right for both their choices, while of the remaining children, a major proportion tended to go to the left for both their choices. Likewise when the speaker was at C, the majority of children chose both their objects from the right, but in the case of the younger group, a similar number also made both selections from the left side. So amongst both age groups, there is a tendency to always choose from some absolute spatial location, regardless of the relative location

(from the speaker) designated by the demonstrative term.

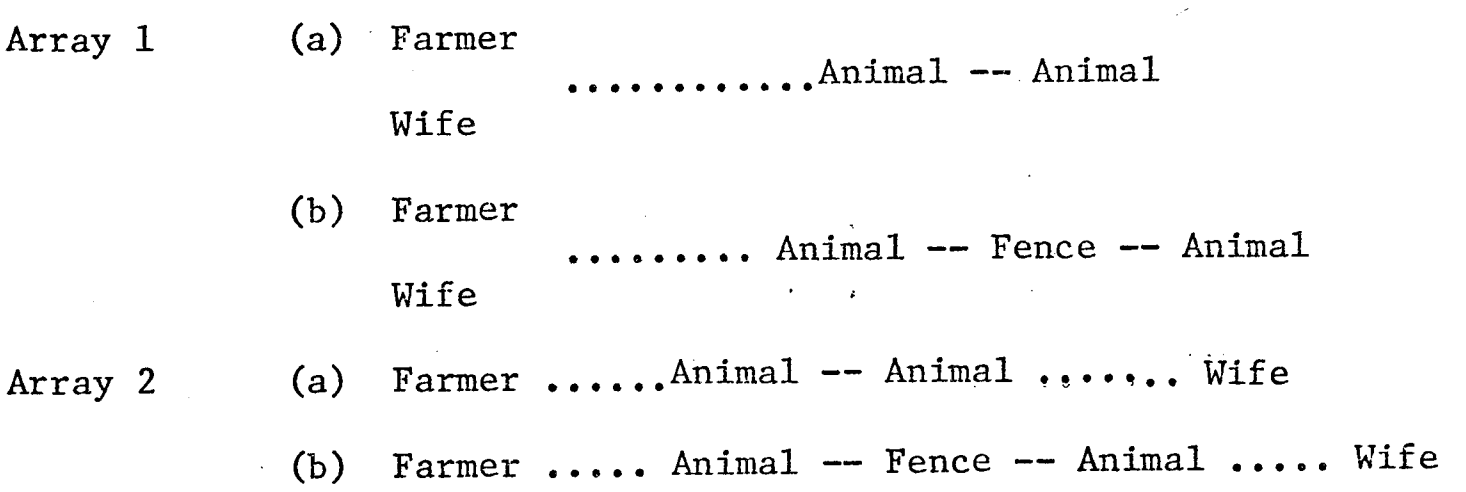
Therefore, having the adult as speaker, children apparently tend to select objects from certain spatial locations, depending on the locations of the speaker and the objects. The next experiment alters the social aspect of the comprehension task by presenting the speaker and listener as models, with the objects in positions relatively nearer and further from them, rather than from the child himself.

Experiment 11

This task also aimed to investigate comprehension of the demonstratives this and that, but through the use of model actors as speaker and addressee and model objects. Only 3 year old children were tested to examine their responses and response patterns to two different conditions and to compare their responses on this task with the previous task.

Material: Each child was presented with two model actors and two identical model animals in the arrangements presented in Figure 7. A small board was placed on the table between the child and the experimenter, and the material arranged upon it.

Figure 7 : Material used in Experiment 11.



Method: As was indicated earlier (in section 4:3:1), this experiment not only altered the social aspect of the task, but also examined the effect of the insertion of a barrier between the objects to be selected and the speaker and addressee on certain occasions.

Each child received either Arrays 1(a) and 2(a) or Arrays 1(b) and 2(b). With 1(a) and (b), the speaker and the addressee were located at the same side of the board, while with 2 (a) and (b), they were opposite one another. Each child was told that the Farmer or his wife wanted one of the animals and he/she was going to ask the other for it. The child's task was to tell E. which animal it was that the speaker was requesting. With (a) arrays, the statements used were "The Farmer says to his wife "I want this (animal)"", and "The Farmer's wife says to the Farmer "I want that (animal)"". With the (b) arrays a similar procedure was adopted, except that this time the statements were of the form "The Farmer/Farmer's wife says to his wife/the Farmer "I want the (animal) on this/that side of the fence"". The children had no difficulty fulfilling the task requirements and readily indicated an animal, usually with a nonlinguistic point.

Each child received both demonstratives, with both the Farmer and his wife alternating as speakers, with the order of presentation of the demonstrative terms and the speakers from whom the request was purportedly uttered balanced across children. The side-by-side condition (i.e. 1(a) or (b)) was always presented first, so both speaker and addressee were on the same side, and each actor was speaker. The absolute position (i.e. left or right on the board relative to the child) was also balanced. Also counterbalanced was the actor who then was moved to face the original position. The pairs of animals were varied for each set (i.e. both demonstratives) of referring requests, in random fashion so that there was no association of word and referent.

Subjects: 24 children (12 male) of mean age 3:8 (age range 2:11 - 4:3) served as subjects. 12 children were subjects with (a) arrays and 12 with (b) arrays. 10 children (out of 12) responded adequately to the (a) arrays.

Results and Discussion: A correct response from the child was one that involved specification of the animal appropriate to the demonstrative contained in the request. That is, the choice of the animal nearer the speaker in response to *this* and the one further from the speaker in response to *that*. Obviously, with only two animals there will be some second choices based solely on the selection of the *other* animal, but if the first choice were wrong, the second may then be correct or incorrect. So not only are the proportions of correct and incorrect choices important when considering the child's comprehension of these terms, but the response patterns are of equal importance.

The proportions of correct choices to all four sub-tasks are given in Table 39.

Table 39 : Proportion of correct choices to *this* and *that* in the four arrays used.

		THIS	THAT
Array 1	(a)	.60	.40
	(b)	.66	.33
Array 2	(a)	.40	.30
	(b)	.75	.33

As can be seen, there is a tendency to select the correct animal in response to *this*, while the proportion of correct choices to *that* is lower. However, when considering the response patterns,

why the number of children obtaining the correct responses is so small becomes explicable.

Table 40 shows the response patterns employed by the children for all four parts of the procedure.

Table 40 : Response patterns used by the children when responding to requests containing the words this and that.

Conditions	1(a)	2(a)	1(b)	2(b)	Total
Strategies:					
Always choose near speaker	6	3	7	5	21
Always choose away from speaker	4	2	3	0	9
Alternate	0	5	2	7	14
Total	10	10	12	12	44

With arrays 1(a) and 2(a), there was a tendency to choose the object in a relative spatial position all the time, either nearer to the speaker or further away from the speaker, regardless of the demonstrative used in the request. The pattern of choosing near the speaker resulted in a high number of choices in response to this seeming to be correct.

With arrays 1(b) and 2(b), the addition of the fence seemed to lead to a greater variety of responses. Very few children selected the object nearer the speaker or the object further from the speaker all the time. The fence acts as a physical barrier which apparently forced the children to alternate their choices more frequently, with the result that four children alternated their

choices correctly, while five did so incorrectly. Whether this means that the children understood the spatial distinction between the demonstratives is debatable, but the fact remains that 9 children did choose alternate animals in this condition, compared with only two children when there was no physical barrier.

In comparison with the previous experiment (Experiment 10), where the experimenter acted as the speaker, children of a comparable age (three years) again in this experiment tend to choose objects from an absolute spatial location in response to either demonstrative. Particularly with arrays 1(a) and 2(a), there was a tendency to choose the object nearer the speaker, but this time, the location was relative to the child because of the experimental manipulation undertaken. However apparently the erection of a fence (and perhaps the use of a different linguistic request) leads the child to pay more attention of the directing request and causes him to vary his choice accordingly. This type of procedure is analogous to that performed by the de Villiers' (1974), where they erected a barrier on a table and had the experimenter issue instructions from the opposite side from the child. With this procedure, they found that even children of three years of age were seemingly able to understand the spatial distinction between the demonstratives. So the idea of a physical barrier (whether or not the child can see what is on both sides - in the experiment here, the child could see everything; in the de Villiers' procedure, the child could actually only see what was on his side of the barrier) appears to make the children pay attention to the words being used to refer to spatial locations, and perhaps they are beginning to work out some distinction between the terms <u>this</u> and <u>that</u>, taking into account the speaker's relative position,

and basing their choice of object on the relative position of the speaker to the objects.

In this experiment, when the speaker and addressee were located side-by-side (Arrays 1(a) and 1(b)), most children selected objects from one spatial location only. The erection of a barrier between the animals resulted in some selection alternation. When the speaker and addressee were opposite one another (Arrays 2 (a) and (b)) and each actor took a turn in issuing a request, there was a tendency for the children to select the object nearer the speaker, but other patterns of selection were recorded, including alternation of choice. The erection of a barrier between the speaker and addressee (Array 2(b)), resulted in more alternation of choices, with a high proportion of correct choices to this (.75). Placing the child in a position where he can see both the objects and the model actors, and where the actors are facing one another apparently enhances the young child's performance on a task where he must base his selection of object on the relative distance of that object from a speaker. Although in general, the children are still tending to select objects from one location - nearer the speaker in this experimenter, compared with nearer the self or towards the right-hand side in Experiment 10.

The final comprehension experiment considers the effect of teaching children the spatial distinction between the terms this and that, to see if this enhances subsequent performance on a regular comprehension task.

Experiment 12

Aim: This training experiment was undertaken to see if teaching young children the distinction between this and that was possible in terms of making them aware that when these words were used (contrastively), spatial locations were intended. The three year old children were specifically taught the spatial distinction inherent in the demonstrative terms this and that, based on an object's relative proximity to the speaker. If training is successful, then subsequent performance on a comprehension task should be totally accurate (and better than performance on the tasks used in Experiments 10 and 11). However, accurate performance does not necessarily tell us anything about how the contrast between the terms is worked out.

The children are trained on what are assumed to be important and interrelated variables in making the contrast between the terms, viz. the importance of the speaker and the relative proximity of the objects to the speaker. These are perhaps valid assumptions, but in training children to pay attention to these variables, we gain no insight into how children naturalistically work out the distinction between the terms. However we can say that an understanding of the isolated variables does lead to successful performance on a task where children of a comparable age normally fail. Notwithstanding the drawbacks, this experiment investigated whether training the children could effectively be undertaken, i.e. could three year old children be taught the contrast between this and that. To assess whether or not training had been effective, the children were tested on two tasks similar to Experiment 10.

Material: A selection of model animals was used, composed of identical pairs, plus the Farmer and the Farmer's wife models.

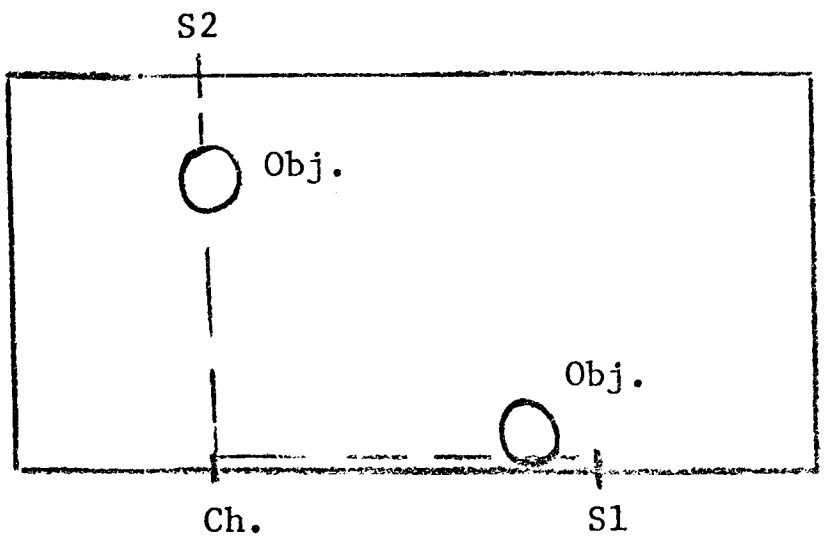
Method: The children were taught the distinction between this and that with the aid of the model Farmer and the Farmer's wife. Commencing with the model actors side-by-side and the animals located in a line such that one was nearer the actors than the other (this is depicted in Figure 7, p.184, Array 1 (a)), the issuing request from the Farmer was made. The actual utterance used was the same as that in Experiment 11 with Array 1(a), viz. "The Farmer/Farmer's wife says to his wife/the Farmer "I want this/that animal"". Initially the children (who had not taken part in any previous experiments concerning the demonstratives) were directed to make a choice based on a request which contained the word this. If the child made the correct choice of the animals nearer the speaker, then he or she was asked for a justification. Whether the child was incorrect or correct or whether or not the justification provided was judged to be sufficient, an explanation was then offered. It was explained that when the word this was used, the speaker wanted the animal nearer to him. Several more this requests (from both model actors) were then supplied, and the children had to make and justify their choices. The word that was then introduced, and again the child had to make a choice and justify his choice. Again an explanation was offered, this time telling the child that when that was used, the actor required the animal further away from him. Several trials were conducted with requests containing that. The two demonstratives were then used in succession and alternately. Further explantion was always provided when necessary and the children always had to justify their choices. When the child had correctly selected and justified

five demonstratives (of alternating this and that) with the two actors side-by-side, one actor was then placed opposite the other (as in Figure 7, Array 1(b)), and the same training procedure was undertaken. Again the children had first to select and justify their choices to this, then that, then the two alternately. Explanations were given where necessary. Finally, 10 trials were given of both speaker locations (i.e. side-by-side and one opposite the other) and using this and that in random order, and children were deemed to have grasped adequately the spatial distinction if they made no more than three errors. In fact all children were able on almost all trials to indicate the correct animal and provide the correct justification by this point. The entire training session lasted between 15 and 20 minutes.

The children were then presented with two generalisation tasks - Task A, a replication of Experiment 10 (see Figure 6 only) and Task B, a replication of Clark and Sengul's (1978) experiment. In Task A, only speaker positions A and D were used (beside and opposite the child) with the objects placed such that one was nearer the child than the other, while in Task B, the objects were equidistant from the child (see Figure 8). In each case(and from each speaker position used), the child was asked to pass the experimenter an object, the request being of the form "Please pass me this/that object", where two identical objects were presented, a different pair for each request. The tasks were always presented in the order A then B.

Subjects: 7 children (4 male), mean age 3:7 (age range 3:2 - 4:1) served as subjects.

Figure 8 : Task B in Experiment 12 (from Clark and Sengul, 1978).



Results and Discussion: The results obtained from Tasks A and B are shown in Table 41, in terms of the proportions of correct choices made in response to the request demonstratives. Although the task order remained constant, speaker position and order of presentation of the demonstrative terms was varied. The child had only to select an object in response to this or that and was not required to justify his or her choice

Table 41 : Proportion of correct responses to the demonstratives in Tasks A and B.

	THIS	THAT
Task A (n=7)		
E beside C (A)	.85	1.00
E opposite C (D)	.85	1.00
Task B (n=7)		
Speaker at 1	.71	.85
Speaker at 2	.85	1.00

As can be seen, the training of the children led to an improved

performance, in terms of correct choice of object in response to the demonstrative uttered, compared with the results of Experiments 10 and 11. Several children did justify their responses with reference to the already provided explanation of _this_ being nearer the speaker and _that_ referring to the object more distant from the speaker. Performance on _that_ was superior to performance on _this_ for all four speaker positions, and this is indicative of the children becoming aware of the importance of the role of the speaker. Children who did err were allowed to correct their choices and subsequently selected the right object. An explanation was then sought justifying their change and why it was now correct.

Although the sample of subjects employed in this task is too small to make any firm conclusions regarding the value of teaching children the distinction involved in the use of the demonstratives contrastively, it is nonetheless interesting. From the point of view that training _did_ seem to make the children aware of the distinction in terms of the speaker's position with respect to the objects, it was a useful undertaking. The variables selected for training, namely, the importance of the speaker and the relative proximity of the objects to the speaker can be assumed to be the aspects of the use of _this_ and _that_ that children have to master. How children master them and come to understand the distinction between the terms cannot be answered, but we have isolated the appropriate variables at this stage. Not only were the children able to make the correct choices and justify their selections when model actors were used, but they were also able to apparently correctly understand the terms as used by the adult experimenter. They were not, in the latter tasks, drawn to selection of the object nearer themselves, but were apparently able to relate the

use of the terms to the adult's position relative to the objects. Furthermore, the fact that some children could then use the explanation provided in the training session to justify their choices subsequently suggests that the training had been beneficial in pointing out the link between linguistic terminology and context. This link can aid the child in understanding the terms under consideration and can also aid in the location of an object. To what extent this training is in any way related to the natural development and acquisition of the demonstratives is a questionable aspect of the technique. The experimentation involved the location of one object with respect to the speaker, when two identical objects were present, and this type of situation would rarely, if ever, arise. However, it would appear that training children in an awareness of the importance of the speaker's role can indeed be beneficial in making children aware of the distinction between this and that, while furnishing us with more evidence to suggest what aspects of the distinction children must master for successful comprehension.

4:4 Conclusions

The preceding set of comprehension experiments provide some idea of what children do in tasks designed to investigate understanding of the terms this and that. Different contexts were used (in Experiments 10 and 11) and provide confirmation of previous experimentation. Experiment 12 indicated that teaching of specific notions involved in comprehension of this and that enhanced subsequent performance on comprehension tasks and enabled isolating the important variables that must be mastered for accurate understanding. However, we still do not know how the child comes to master the spatial distinction between this and that.

Experiment 10, when the speaker was beside and opposite the child (A and D), with the animals on discs such that one was nearer the child than the other confirmed the results obtained by Webb and Abrahamson (1976), i.e. that comprehension of that was superior to this when the speaker was opposite the child and comprehension of this was superior when when the speaker was beside the child. However these results can be explained by response bias; the child is tending to select objects located nearer himself. The de Villiers' (1974) found that around the age of three and a half years, children show total comprehension of both demonstratives in a situation where the speaker sat opposite the child (they did not have the speaker beside the child in their comprehension task). Why this should be so is unclear, particularly as the numbers of children showing accurate comprehension were remarkably high - around 90%. The authors claim it is part of a developmental progression , improving with age, fitting in with their hypothesis that children are able to comprehend such terms requiring translation

from the speaker's point of view at a very young age because of the importance of such terms in mother-child interaction and communication. However, the younger children in their sample did tend to choose the object nearer themselves regardless of the demonstrative used.

On examining the results obtained when the speaker was at B and C in Experiment 10, and the discs were equidistant from the child, it can be seen that for both three and five year olds, comprehension of _that_ was better when the speaker was at B, and of _this_ when the speaker was at C. This is attributable to a response bias - a 'going to the right' - to an absolute spatial location. The strength of this bias varies between age groups and between speaker positions - the strongest effect was when the speaker was at C with five year old children, where 75% of the children went to the right (correctly) in response to _this_, while 83% went incorrectly to the right in response to _that_, only 17% going correctly to the left. In the other conditions, the effect was not as strong, with about 50% responding correctly to each word, regardless of the side of the correct response.

These results tend to suggest that three year old children are partially operating on a level where response bias to either the self (i.e. objects located nearer the self) or to an absolute spatial location (to the right) is over-riding. Five year olds seem better able to differentiate between the two demonstratives, being more able than the younger children to specify relative location, translating from the speaker's point of view. This holds _as long as_ there is no proximal object, for here these older children tend to resort to choosing the object nearer themselves. There is also evidence that

under certain conditions, (e.g. speaker position C, Experiment 10), children tend to choose the object nearer the speaker, and while this may simply represent enhancement of the response bias seen at a younger age, it may point to the older child's increasing ability to recognise the importance of the relative position of the speaker in the type of situation given.

Training the children (Experiment 12) seems to make them more aware of the spatial distinction involved in the terms. Task A was equivalent to Experiment 10, with the speaker at A and D, and even the small number of children involved in the training succeeded on this task. Also, performance on task B (Clark and Sengul, 1978) was apparently enhanced by teaching the children how to locate objects successfully based on an understanding of the demonstratives, as here the objects were equidistant from the child. This type of situation was never specifically taught, but the proportions of correct choices after training were higher that those found by Clark and Sengul (q.v.) with three year old children. There was no evidence of any form of response pattern other than correct alternation of response after training.

Fianlly, Experiment 11, although investigating the child's understanding of this and that, was slightly different to Experiment 10 in that the directing request came from a model actor. Although this factor per se does not seem to make any difference to the numbers of children making correct choices (although the preference this time was for a relative location i.e.nearer the model speaker, whose absolute location varied from child to child), what does make a difference to the numbers is the erection of a physical barrier betwen the two objects from which the child must make a

choice. Although this did not result in totally correct choices made throughout, it did apparently increase the number of children who alternated their choices (both correctly and incorrectly), and the results obtained are analogous to the success rate achieved by the de Villiers (1974).

Although we cannot present a developmental model here, we have succeeded in isolating the important variables in the mastery of this and that. We have shown that in different contexts, the children still tend to favour selection of objects from one certain location (either nearer the self, in an absolute location, or nearer the model speaker). Only in one condition (the erection of a fence between the objects) was the success rate (as measured by correct choices) improved. Five year olds may respond differently to three year olds in all tasks, but in Experiment 10, there is only slight evidence to suggest that they favour objects located near the speaker. That is, they are perhaps becoming aware of the speaker in such deictic tasks. Training the children to become aware of the speaker enhances performance on comprehension tasks, but does not tell us how young children comes to master the distinction naturally. The developmental progression from an inability to make the contrast to full comprehension may be task dependent, and in this way, the results may have little bearing on how the child in real life comes to master the contrast. Admittedly one might encounter a variety of situations where comprehension of this and that (either separately or together) will be necessary to complete a requested action. Given a situation, for example, where a mother were to ask her child for an object using only a demonstrative word plus a noun in her request and no other indicator of location, the child may initially provide her with the object nearer himself

(given that the location of the child and the mother, and of potential referents, is such that this response is possible). The child's response is plausible, but correction would be necessary to enable the child to select the required object. The experiments did not allow for correction - for one major reason. Usually only two objects were presented, and correction of only erroneous choices would have led to correct responses all the time, while repetition of the instruction in all cases might have led to the entirely opposite pattern of responses - neither of which would have given any indication of how the child is coming to make the contrast between the terms in different situations.

The development in the child's ability to understand the demonstratives apparently is highly context-bound, with the level of operation depending on the position of the speaker relative to the child and on the location of the objects, both absolutely and relatively to the child. For example, five year olds varied in the level of sophistication of responses depending on the arrangement of speaker and objects, while the younger children paid little heed to position of the speaker. A more realistic situation would need to be devised where such inconsistencies in differential locations are mirrored more naturalistically. However, it has been shown that comprehension varies with age and according to the situations, with increasing competence emerging across all situations as the child's communication system develops.

The use of the demonstratives has been shown to be related not to the absolute position of objects, but to the position of the object relative to the child. However, the spatial distinction is not yet acknowledged by the young children, although differential uses are

found. This is used when the child has the object in his hand and close to himself, while that, with the object in the hand, accompanies a proffering gesture. That is also used accompanying a pointing gesture, and can be likened to the weak deictic use of the definite article. The plus a noun identifies an un-named object, while that plus one refers to the object with a certain spatio-temporal location that has already been identified. Both deitic uses do not specify either absolute or relative spatial location, but merely indicate the presence of a known object which is under joint consideration.

Variation of the spatial context for understanding and use seems to be an important factor in the study of the demonstratives, and apparently previous work does not place sufficient emphasis on this aspect in the development of the ability to master the conterast between this and that. That is, different contexts can give rise to different results, and different conclusions about the child's ability could be drawn from each of them. However, we know now that the child can operate within a spatial framework as he can use the terms contrastively. Also, experimentally, within each task we can now bring to light what in the contexts make the children act in such and such a way, and how the child uses the available information to these contexts to enable his development and mastery of the terms involved.

Chapter 5 Overview of the use and understanding of the determiners in young children.

In the previous chapters it has been established that three year old children are capable of using the articles and demonstratives in various functions. Taxonomies of the functions of these words (as elicited by the experiments) were made at the end of each chapter and provided the bases for the discussions. However, such taxonomies, listing the main regularities seen in the use of the articles and demonstratives, are insufficient. The functions observed in the studies were also considered and for the age range involved, some of the possible ways in which the and a, this and that are used and how the functions are influenced by various contextual factors can be examined. The proposed theoretical relationship between the articles and the demonstratives must now be shown to be a valid one.

First however, it must be realised that three year old children have a fair degree of mastery of the article forms. The articles are enormously important words in the English language, as was shown in Chapter 1. However, they are anomalous 'words' in that they have no concrete referent. But the and a can indeed be words. They are not bound morphemes like the progressive ending '-ing' or the possessive '-s'. They stand complete and unattached from the words to which they refer. They even have dictionary definitions, although they are meaningless on their own. So we have apparently bound, free morphemes, or conversely, free, bound morphemes. Most individuals realise that the and a are separate words, but in language acquisition this may not necessarily be so. An observations of one child's early use of language (at age 23 months, MLU = 1.60) revealed "abawwoh" (= a barrow) with an intonation

pattern that indicated that it was one word and was used consistently to refer to a wheelbarrow. No other article forms were noted in the child's speech at this time. So the fact that children as young as three years have made a distinction between the two article forms is remarkable enough. Most children can alternate the and a, and do not see the forms as being irretrievably attached to individual nouns. A child will refer (on separate occasions) to 'the ball', 'a ball', and even 'ball' without an article form. Chapter 3 in particular illustrated this omission of the article form and revealed it to be a common phenomenon in young chidlren. It is proposed that this is evidence of the instability of the uses of the articles. A little noted and discussed phenomenon, it is reported although not commented on at length by previous authors.

Smith (1933; in Bloom, 1978), in a paper reporting grammatical errors in the speech of preschool children, noted firstly that the "use of the article is learned relatively late". Many errors in article use were noted and she does point out that a number of the errors were of article omission. The other errors tended to be of a confusion between a and an, and a and the. She provides age levels for these errors, and states (from Bloom, 1978, p.35):

> At age two years, 77 per cent of the times an article should have been used it was omitted, 30 per cent of the time at three years and 6 per cent at four .....

In all, the errors she found in the children's speech comprised mainly omission and inflection errors.

De Villiers and de Villiers (1973), in a cross-sectional study of morpheme acquisition (based on Brown, 1973), indicated that there was a mean of 60% correct use of the articles. The children studied were aged between 19 and 40 months (MLU range : 1.25 - 4.67), and that with increase in age and MLU, there was an increase in the percentage of the obligatory contexts where an article was used correctly. Does this imply, that around 2 1/2 to 3 years of age (the average age of the sample), 40% of the articles were used incorrectly, or even omitted? Taken with the previous figure reported by Smith (30% at age three years) and the findings of the experiments reported in Chapter 3 (where on average around 30% of the reponses did not contain an article form), this would be a valid comment to make. In about 30% to 40% of contexts where an article form should appear, at age three years, children omit an article form , or at least err in the form required in that context. De Villiers and de Villiers do not state what occurs in the remaining 40% of the contexts where an article is incorrectly used, but the agreement between all the authors (given that the de Villiers' sample is slightly younger than the children referred to by Smith and also the children in the experiments in Chapter 3) about the relative percentages leads one to suspect the errors are ones of omission. Thus the incidence of article omission in the speech of three year old children is apparently around 30% to 40% - a figure which is reflected in the experiments devised here. In this respect, the experimental incidence of the use and the omission of article forms apparently mirrors naturally occurring speech (according to de Villiers and de Villiers, and Smith).

In reviewing the previous experiments, it is apparent that many aspects of the experimental situation are influencing the linguistic and the nonlinguistic forms produced. The demonstrative experiments showed that the three year old child can work out the distinction between the demonstrative terms this and that, given appropriate conditions. For production of this and that in their nominal contrastive sense, the area in which the child can operate appropriately is very limited. That is, he can use the terms correctly, provided he is holding the object, either close to him for this or with an outstretched hand for that. Already the young child is the centre of the area in which he can successfully operate. With development would come the extension of this space, in terms of distance from the child's immediate self, the central reference point. Appropriate reference in the temporal sphere would also develop later. The child can use that non-contrastively, in its determinative sense. He utters "that one" when specifying an already named object, adding context to the linguistic specification. The reference, although not indicating any spatio-temporal dimension, is unambiguous with respect to the current visual and linguistic context. This is to be contrasted with the child's comprehension of the terms this and that. Although the contexts used were different from those used in production, and only the contrastive use of the demonstratives was considered, once the spatial distinction has been made clear to him (via the training), the child can work out the appropriate location of objects relative to the speaker. This may be because he has already established himself as the centre of one system (when he is speaker) and is capable of transferring the same principle when someone else is the speaker, once being made explicitly aware of the

relationship between language and context. Older children (in this case, five year olds) can apparently relate the distinction between the terms to the speaker's position in certain situations. The younger three year old cannot relate to the speaker however, except perhaps when a model speaker was used. Although the three year old can make use of this and that appropriately under certain conditions, he seemingly cannot yet understand adult usage.

This notion links with the Piagetian idea of egocentrism - the younger child being unable to decentre from himself - and this may indeed be the case. The idea of egocentrism has already been discussed by other researchers - for the demonstratives see Webb and Abrahamson (1976) and for the articles, in particular the egocentric use of the definite article, see Maratsos (1976) and Warden (1973). But the fact that the three year old can use the demonstrative terms contrastively, albeit in a limited manner, would indicate that the problem lies in relating the terms to the speaker and taking the speaker's point of view for appropriate understanding. The young child can therefore be considered linguistically egocentric in two ways. Firstly, when speaking, he can use the terms correctly, both nominatively and determinatively, but the former with reference to himself and then within specific spatial limitations. Second, when attempting to understand adult usage, the child fails to use the linguistic information made available to him by the speaker and also fails to co-ordinate his knowledge for production with the comprehension situation. The contexts used in the procedures are unnatural and the child perhaps has difficulty relating his knowledge (both linguistic and cognitive) to the context of the experiment. The demonstrative production experiment indicated that young children

could use these words, but not entirely with adult meanings. The variables used in the experiment were not taken as cues for appropriate contrastive use, but rather the children made their own distinctions, based also on spatial proximity, but within narrower limits than intended. The children's use in the experiment did enable us to see how they act in that situation and how they were influenced in their use by variables other than those the adult deemed to be important.

A similar problem was encountered with the article production experiments. The children produced different uses of the articles dependent on different requirements. These requirements were not always the ones the adult thought were appropriate. However, by looking at what the child did and how they acted in the experiments, we can get a better idea of the uses to which they put the articles. The variables considered did have an influence on the forms and functions produced, but in some cases, many article forms were produced in one experiemnt, as the children tended to complete the tasks the way they believed was intended by the adult (cf. McGarrigle, Grieve and Hughes, 1978). What is left is to discover why the young child seemingly failed to grasp the task requirements on some occasions and is influenced by what were intended to be neutral variations. This question cannot be answered here, but this problem is one that must be acknowledged.

However, by the very process of manipulating experimental variables, there is evidence that the different uses of the articles and demonstratives are available to the three year old child. Although many tasks were not undertaken in the manner intended by the experimenter, but rather as the child saw them, different uses of,

for example, the definite article and the indefinite article, emerged. One can then specify the experimental factor(s) that perhaps play a part in the choice of one article form over another by most of the children. That is, we can ask the original question, namely, what led the children to employ the functions observed in the studies? The specification of the precise factors (i.e. those manipulated variables per experimental procedure) was made in the discussion to each experiment, and here we wish to consider the experiments as a whole. That is, the children were influenced throughout these experiments by the intended variables on some occasions, while on others, seemingly neutral variations resulted in distinct preferential responses. But in several instances, (e.g. Experiment 7), the same experimental condition resulted in an equal distribution of the uses of both article forms, depending on how the child saw the task. This surely points to the fact that different uses result from different notions on the part of the child about the task to be performed. Article and demonstrative comprehension tasks involving the selection of particular objects in response to different forms of determination, indicated that children are tied to absolute spatial location, and do not use the form of the language presented when making a specified choice. In all cases, the choice was appropriate according to the noun (the name of the object), but not always according to the determiner, which could specify relative distance (the demonstratives), uniqueness (the definite article) or indefiniteness ('any').

The question of the relationship between what it is we are trying to find out and how the child views the components of the task designed for the investigation must be more clearly defined and given greater emphasis in the future. This relationship is of

paramount importance when devising tasks with elements that are believed to be influential. It has been seen that children may ignore one or all of the given elements in a task. For example, in demonstrative production, the children ignored the relative spatial locations of the two sets of objects, but seemed to take into account the object's location relative to the self. In demonstrative comprehension, the children ignored the verbal request and the relative speaker position, but took absolute spatial position as their important variable. Finally, in article comprehension, again the request was ignored, but absolute spatial location was taken into account. The child may also be influenced by given elements in a task in different ways. For example, in the article production experiments, the elements such as the structure of the question and whether or not the array was hidden or visible interacted in various ways, which were also dependent on how the child viewed the task, to produce different results, in terms of the article forms and functions elicited. Therefore, a balance must be sought between what a task comprises and how the child may react in a given situation. Further experimentation in the field of linguistic determination must aim to seek how children can be influenced by the various factors that are brought to bear on a task - a task ostensibly designed to test a specific phenomenon.

Looking now at the relationship between the articles and the demonstratives, an age-related framework must now incoporate all forms of determination and their functions in children of three years of age, and Figure 9 illustrates this. The child of three years of age can use the demonstrative terms this and that contrastively, and he can also use that determinatively, as a weak deictic marker. This function is the precursor to the correct

Figure 9 : The three year old's functional system of determination.

	DEMONSTRATIVES	ARTICLES		
		THE	A	OMISSION
PRODUCTION	1. this/that - contrastive, nominal function. Limited space. 2. that - deiçtic, determiner use.	1. Deictic, determiner use. 2. Exophoric function. Relation of language to context.	1. Naming 2. Indefinite, generic function.	Seen due to instability of the article systems.
COMPREHENSION	Could be tied to absolute space spatial locations. At age 5, there is a realisation of space relative to the speaker, not to the self.	Unclear Child tied to absolute spatial locations.		

use of the definite article, both being forms of specific determination. In terms of understanding, there is difficulty in relating the nominal use of the words to another speaker - a difficulty that still has to be overcome, but is not insurmountable, as evidenced in the experiment where a training technique was employed. What must be borne in mind in outlining this age-related system of determination is that the evidence comes from the experimental situations devised and the child's responding to these tasks. However, by recording what the children actually did in both the production and the comprehension tasks, we can gain greater insight into the young child's system of determination, and a broad picture does emerge. The article system, with the two separate forms (the and a) and the uses to which they can be put, relates to the system of the demonstratives through the determinative uses of that and the. The systems are not fully developed, as all functions encoded by the articles and demonstratives are not competely mastered by the age of three years, but a parallel progression is on-going. The assumptions on which the experiments were based appear to have been valid ones, as the uses to which these small words are put would appear to be the ones with which adults organise their determiner systems. Although, in the case of the three year old children, not all uses of the articles are noted, nor would it be reasonable to assume that the children realised the relationship that obtained between the articles, or the one between the definite article and the demonstrative that. The instability of the systems of determination is clearly seen in the frequent omission of an article form - a little reported phenomenon, but common at the early age under study. The children are unaware of the obligatory use of some form of determination in English.

Thus in conclusion, this thesis, while originally conceptualised as a study of the three year old's use and understanding of the determiners, has raised some other important issues - both theoretical and empirical. Several aspects of determiner use and comprehension were investigated, while others were not. The latter were not considered due to difficulties with either the methodology of experimentation or the underlying theoretical assumptions. For example, no consideration was given of the generic uses of the articles, since not only is the area woolly theoretically but empirically, it would be a difficult topic to research. Neither was the colloquial use of this investigated, because in the population studied, this form did not occur in the local dialect. However, the depth of the investigation raises issues concerned with methodology, and of course, most importantly, the language as used by the children was studied. Although theoretical assumptions had to be formed to provide a basis for the tasks, these assumptions were apparently valid. It was also possible, by the experiments and the manner in which the research was conducted, to establish how children use the different forms of determination in English. Emphasis was given to the experimental variations necessary to establish the links between the systems of determination in English. Children do act systematically in such tasks, because of the way the tasks were designed and also because of the way they conceptualise the task, and the whole situation. The notion of the disparate relationship between the task as conceived and presented by the adult experimenter and the task as conceived and completed by the child should be given greater consideration in any future research, particularly if greater study is going to be made of the functions of children's language. Consideration must be given to what the child is actually doing both linguistically

and nonlinguistically in a given experimental situation, and then why he is doing so. That is, what in the task is eliciting the language forms and functions recorded.

The results of the experiments in terms of the determiners used were not considered as deviations from adult usage. Although assumptions were made based on adult usage, what the children actually did in the tasks was regarded as providing evidence for what these children were capable of producing and understanding. The fact that the uses and functions recorded corresponded to the assumed functions indicates that the assumptions were valid, and also that developmentally, the children acquire the functions that adults use, and that these functions are acquired gradually and in certain contexts. It can now be said that at the age of three years, certain functions are performed by the article and demonstrative forms, and that children encode those functions through the use of the determiners. Many forms of determination can be elicited by but one single experiment, which indicates that contextual variations can lead to different uses of the articles. It also points to the fickle nature of young children in experimental situations, where their actual linguistic and nonlinguistic performances may be altered by apparently neutral variations in the task structure. However, this also indicates the functions of the articles that three year old children use and that these young children are sensitive to the various uses. The amount of data achieved through a consideration of the forms elicited and omitted should make this method of study of children's language use (and comprehension) a profitable one to follow in the future, particularly with respect to a developmental study of the functions of the determiners.

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