

P/S

ACQUIRING & FORGETTING A SECOND LANGUAGE :  
A STUDY OF THREE CHILDREN AGED 5 - 11 YEARS

A Dissertation  
Submitted in Fulfilment of the  
Requirements for the Degree of

MASTER OF PHILOSOPHY  
(Specialising in Language Education)

by

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Nothing is rich but the inexhaustible  
wealth of nature. She shows us only  
surfaces, but she is a million fathoms  
deep.

Ralph Waldo Emerson

I know it's still back there. It's  
buried deep in the ground.

Miles Keogh

DECLARATION

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Philosophy (Language Education) in the University of Cape Town. It has not been submitted before for any degree or examination in any other university.

Signed by candidate

Susan Elizabeth Keogh

1st day of August, 1983

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SYNOPSIS

This investigation is concerned with what three children remembered or had forgotten of a second language after an interval of two years. An in-depth study, consisting of recognition and recall tests, was made of 13-year-old identical twin girls and their 9-year-old brother, who previously had been English/French bilinguals. A phenomenological approach was taken, which included the children's reaction to the tests, and their description of the personal framework within which the learning and forgetting had taken place. The findings, which are suggestive due to limited data, are : first, cognitive and maturational differences between the children caused the twins to retain more recognition and active recall of French than their brother; second, the twins showed a surprising difference in their recognition of French, possibly caused by affective factors; third, all three children showed strongest recognition in the area of semantics, while in recall they retained phonology best; fourth, in the tests, habit memory and episodic memory were more durable than semantic memory. The investigation is a first step towards understanding how children forget a language in which they have been submersed.

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## INTRODUCTION

### 1. THE RESEARCH PROBLEM

This research deals with a fundamental problem in language learning : what happens to a second language in memory when it is not used for long periods of time? In particular, what happens to a second language in a child's memory, when language proficiency seems to be effaced within weeks of leaving the second language environment? Is it true, as Taylor (1976) states, that "children forget a language as quickly as they learn it" (p.241)?

Research over the past 100 years has built a complex, contradictory picture of how an individual acquires, stores and retrieves verbal learning. Almost all this research has focused on learning in experimental situations, using word-lists in a carefully controlled framework, to be remembered over relatively short periods of time. Relatively little research has been done on the rapid decline of ability to use a language which has once been reasonably well-learned or even, in some cases, which was the mother tongue. (1)

---

(1) Nida (1971, p.64) states that "Europeans who have immigrated to America frequently decline radically in their capacity to use the mother tongue".

General observation, combined with specific research on long-term memory, tends to show that as a system, a dis- / used language becomes less available to conscious recall, that is 'forgetting' occurs. This seems so self-evident that we might leave the matter there. Yet Taylor (1976), in a slight reversal, concedes that

"a language acquired in early childhood, even when 'forgotten' from long years of disuse, may leave some residue in the mind . . . "  
(p.242).

Already 'forgetting' becomes a more elusive and more intriguing notion. The 'residue' hinted at by Taylor is where the real research potential lies. My study will explore what is remembered of a childhood or school language after some years of disuse, and will examine the notion of 'forgetting'.

The wider focus of the study is to provide some insights on memory and forgetting for those involved in either learning or teaching a second language. To this end, I will combine empirical data and self-reports, along with the general theoretical perspectives which have guided psychologists and linguists over the last century.

Like the seasons, theories of memory for verbal material come and go, but some remain relevant and contribute to an

understanding of the subject. The theoretical background, despite extensive empirical testing in highly structured situations, has not always been similarly applied to practical problems. Neisser (1982), in an indictment of educational research, challenges future researchers to focus on such real-life problems as what is retained after leaving formal schooling. He says that

"Despite the old saying that 'Education is what is left over when you have forgotten what you learned . . . ' we would be dismayed if a kind of educational Korsakov amnesia<sup>(2)</sup> regularly wiped out all trace of our teachings. How much, then, do students retain? It is difficult to find even a single study, ancient or modern, of what is retained from academic instruction." (p.5).

Such studies of the practical aspects of forgetting would be of value to those who are concerned with the long-term effects of language medium on education.' The question of forgetting a second language, such as a school language, is of particular interest in South Africa, where Black students, after their initial primary schooling, learn through a language which is not their mother tongue. The students' return to their first language speech communities often causes a loss of whatever second language skills they have gained, resulting in a regression to illiteracy. Such loss affects the economic and social situation of the individuals concerned, since it can effectively exclude

---

(2) Korsakov's syndrome - a specific disorder of short-term memory function associated with chronic alcoholism, described in Wingfield, 1979, p. 323.

them from job opportunities and further educational advancement (see Glyn-Lewis, 1981, p.245).

The much narrower and more limited focus of this study is the description of how three children, submersed<sup>(3)</sup> in a French language environment for two years, grappled with the new language and mastered it, only to lose it in varying degrees after moving to a different country/linguistic milieu. Not surprisingly, after two years without contact, the children report their awareness of loss of proficiency in French. Their 'feeling of knowing'<sup>(4)</sup> about their proficiency in French ranges from "a few words"<sup>(5)</sup> to "I have forgotten everything".<sup>(6)</sup> The desire to verify this "feeling of knowing" was the point of departure for the research which follows. ✓

## 2. THE CHILDREN : KATE, MOLLY AND MILES

Neisser (1982) queries the lack of research on real-life forgetting :

- 
- (3) "Submersion" is described by Lafontaine *et al.* (1978) as "the instruction of children within a school system that does not operate in their mother tongue" (p.211).
  - (4) The "feeling of knowing" is described by Hart (1965) thus : "usually people have a definite feeling about whether they know or do not know absent answers" (p.208).
  - (5) See Appendix 1 for self-evaluations by Molly and Kate after recognition test.
  - (6) See Miles' language autobiography.

"It is disconcerting to find that contemporary textbooks of memory devote a quarter or a third of their pages to 'memories' that last less than a minute. Shouldn't memory have something to do with the past?" (p.7).

It is probable that the dearth of long-term studies on acquiring and forgetting particular skills can be attributed to the difficulty of keeping track of the subjects under investigation. My three children offered an unusual testing opportunity. The familial proximity of the children provided me with a surer knowledge of what they had learned before they started to forget, and offered more control over their re-exposure to the language.

The older two, Molly and Kate, are identical twin girls, whose exposure to French as a second language occurred in Niger, West Africa, between the ages of 9 and 11 years. The younger child, Miles, learned French in Niger between the ages of 5 and 7. A fourth child, Christophe, was tested with Miles as a control for recognition of French.

The availability of twin girls afforded a unique opportunity to observe learning and forgetting, since cognitive and genetic variables, as well as time factors, home environment and testing procedures were relatively uniform. This threw into relief the differentiating effects of learning styles, the classroom context, and the

subjective framework within which the learning and forgetting occurred. In addition, the 3½ year age gap between the younger child, Miles, and his sisters, provided information on the developmental aspects of retention.

The apparent loss of second language skills which the children claimed to have experienced activated a strong interest in understanding the slide from functional ✓ bilingualism to something considerably less than that.

### 3. THE FORMAT

This study is divided into two parts. Part I covers such ✓ preliminary considerations as the methodological alternatives and the justification for the method chosen (Chapter One). Following this, the historical and theoretical ✓ perspectives of language acquisition are explored in Chapter Two, with particular focus on such variables as physical and cognitive differences, and the process and assessment involved in becoming a bilingual individual. ✓ Chapter Three reviews the background of memory research, tracing it back to its earliest origins and forward to current models of memory. Aspects of forgetting are ✓ considered in Chapter Four; several competing theoretical explanations of the forgetting process are compared, along with the developmental/structural differences between child/adult memory.

Part II concerns specific empirical data, and analyses of these, on forgetting a second language. Chapter Five reviews the anecdotal and empirical studies on the language forgetting process, which includes experimental work on reviving forgotten languages. The empirical data generated by my own research appears in Chapter Six, which is described and analyzed from my own perspective. The children's reflections, from their own perspective, appear in their language autobiographies in Chapter Seven.

Some highly tentative conclusions and suggestions, including implications for teaching foreign/second languages, form the basis of the final chapter.

1. INTRODUCTION

The approach

a school

P A R T I

PRELIMINARY CONSIDERATIONS :  
METHODOLOGY & THEORETICAL BACKGROUND

## CHAPTER ONE

### 1. RESEARCH GOALS

The apparent 'forgetting' of a language which once served as a scholastic medium and for most social purposes for the three children raised the following questions :

- 1.1 Could a body of knowledge, such as a second language, be retained over an extended period of time without the opportunity of rehearsal and/or use?
  - If so, what aspects of the disused language would be most completely stored in the brain (e.g. phonology, syntax or semantics) and what aspect of the language would go first?
  - How do age and manner of acquisition of the original knowledge affect what is retained?
  - What would emerge about the phenomena of memory and forgetting, as they relate to language, from this line of questioning?

In attempting to answer these questions, various research models suggest themselves.

## 1.2 Ways to Approach the Research Problem

One possible approach to the study of learning and forgetting a second language would be through (1) traditional empirical research methods, and, (2) developmental research methods.

### 1.2.1 Traditional Empirical Research Methods

1.2.1.1 An experimental research approach to the problem would involve setting up some tightly controlled experiments, which would attempt to eliminate extraneous influences as far as possible. Such variables as age, intelligence, attitude, sex and learning styles would have to be separated out and investigated in isolation so that they would not effect each other. In order to achieve statistical validity, a large sample of subjects - in this case, children who had forgotten a language - would have to be found.

Such an empirical study would have to oversimplify the problem to some extent; for example, I could have chosen to study, as Cohen (1975a) did, several aspects of syntax such as tense and gender markers, rather than a wider and more natural sample of language. My approach contrasts sharply with this broad sample strategy, as I make an attempt to study a multitude of factors by limiting the number

of cases observed. With a controlled empirical study, alternative explanations for the obtained results tend to be minimized (Mason and Brumble, 1978). The traditional experimental study tends to impose the researcher's framework on the subjects; <sup>(1)</sup> not surprisingly, the framework does not always fit. In the case of my study, my sample is too small to bear statistical analysis for anything other than as a general indicator of proficiency, and as such is not meant to be generalizable.

A traditional empirical research method would focus on overt responses. Although this is an essential aspect of the observation process, in my own research there seemed to be a place for less empirically testable data, such as how the process of learning and forgetting a language was experienced by the learners themselves. There is obviously room for both types of research; I do not mean to criticize traditional empirical methods but to suggest that other methods might supplement the empirical base.

In my study, I preferred a more open-ended approach, in the interest of reaching a better understanding of the research problem, rather than changing the

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(1) Aronson and Mill's (1959) experiment on the effect of severity of initiation for liking of a group, cited in Chapter Six, serves as an illustration of this kind of research.

status of the cases under study.

1.2.1.2 Experimental and correlational research are basically similar in purpose (Good, 1966). The correlational research method can provide some useful data concerning whether variations in one set of behaviours, such as a recognition response to a second language item, would correspond with variations in another, such as the active recall of second language data. Repucci (1971) has conducted research on the relationship between one set of variables and another, in which he found that cause-and-effect relationships are not reflected in a correlational study, but that direction and degree of association are. For example, knowing how Kate performed in a structured syntactic recall task might correspond with her ability to produce correct syntax in a classroom situation.

Thus, a study may be classified as correlational if it attempts to describe relationships between variables, but does not show that variations in one cause variations in another. To some extent, the receptive/productive variable between the recognition and recall tests points to the use of a correlational methodology.

### 1.2.2 Developmental Research Methods

An obvious research method to use when embarking on the study of young children over an extended period would be developmental in nature, focusing on changes that can be observed over time. Such an approach would involve studying the origins of the children's behaviour and tracing the influences of their physical maturation and cognitive development on their learning and forgetting behaviour, in order to make predictions about their future performance. Curtiss (1977) carried out one of the more notable developmental studies on a modern day 'wild child', with the pseudonym "Genie". A central feature of her study was the role of Genie's age (13) in starting to learn a first language, and the goal of achieving the language proficiency of other girls of that age. While Genie's case is fortunately unique, it is a typical focus of a developmental study to balance the roles of age and cognitive level. This approach often involves studying the same group of subjects over a period of time in :

- 1.2.2.1 A longitudinal case study approach; or conversely, the method can be to look at phenomena in a variety of subjects at different stages of development in :
- 1.2.2.2 a cross-sectional approach.

In considering these two approaches, I was held back by several considerations. Had I decided to take a longitudinal perspective, I would have planned my investigation so that the entire five year period would have been studied during which the children learned and forgot French. On the other hand, a cross-sectional approach would have entailed collecting data all at one time from all of the children, which would be like conducting several separate studies simultaneously.

The advantages of both methods are obvious, but so are the disadvantages. A longitudinal approach, although indicated because of my close proximity to the children throughout the learning and forgetting period, was not feasible because I had not systematically collected data during the children's initial second language learning stages. In addition, it would have been hard to judge how different teaching techniques and teacher attitudes at the time of learning might have affected the children's subsequent test results. Similarly, it would have been hard to gauge whether the children's increased awareness of their learning and forgetting processes - through the knowledge of being in a test situation - might have affected their results by stimulating or changing natural gain or loss of the second language.

The disadvantage of purely cross-sectional studies concerns the fact that the older and younger children are in some ways difficult to compare. Differences of educational level, age, sex, group membership or sibling position might be more important than maturation in determining results. The differences in retention of French between the three children in this study may not only be attributable to maturation but also to their past experience, future concerns, and individual reactions to the test items.

In constructing a theoretical framework within which to locate the unique 'event' (Keen, 1975) of forgetting French by the three children, we can describe the children as trying to remember French in a time and place removed from the original learning task. The primary focus of this study is on the individual children, how they came to know what they knew, the removal both temporally and spatially from the society in which they used the second language, and their role in society at the time of testing, which no longer required proficiency in this language. Thus, the methodological framework needed to encompass a dynamic, natural forgetting process, far from a laboratory setting. Both traditional empirical methods of approach and developmental approaches seemed inadequate for the task.

### 1.3 Methodology : Phenomenological Approach ✓

Because of the relatively unique experience of the children in this study, the research is phenomenologically based; the unusual demands of the problem dictate the method. As a basic principle, a phenomenological approach aims at describing observable data as accurately as possible, without trying to fit them to a predetermined model. While a sound theoretical base is necessary for approaching the subject of memory, in this study the results simply cannot be made to conform to one particular theory or model, for to do so might involve compromising the original data. In consequence, the study is entirely exploratory in nature. The original research - a recognition test - gave rise to other questions and other tests, as the situation demanded.

The methodology of this study is summed up by Kruger (1979) :

"The paradigm of an independent observer ✓ is no longer viable, it being important to recognise that all experimental situations comprise a convergence of two sets of intentions : those of the researcher as manifested in the research design, and those of the subjects as they behave in and experience that particular experimental situation."  
(p.117).

The personal implications that learning and forgetting French has for these three children may well determine the outcome of the recognition and recall tests set by the researchers. As a way of recognizing the importance of the children's emotional needs, individual strategies, predispositions and experience, their language autobiographies are included (Chapter Seven). These illustrate the children's reactions to being tested, as well as their attitudes to French when they were learning it, spoke it, after they had forgotten some of it, and their feelings about its future use; such intuitions are the counterpart of the more structured language tests.

Colaizzi (1978) defends the inclusion of human experience in this kind of psycholinguistic inquiry; he explains that such information gathering techniques do not imply

". . . careless or capricious methodological procedures. The investigation of human experience should proceed objectively." (p.62).

That is, the researcher should faithfully express what emerges from the research process.

To elicit the data from which research questions can be formulated, an appropriate experiment must be

devised, which may be based on written sources, interviews or observational description. Ideally, the aim is the integration of as many of these sources of data as possible.

According to Keen (1975), the phenomenological approach involves :

- 1.3.1 Unique events of everyday life, or real-world problems.
- 1.3.2 Phenomena as they present themselves - reversing the usual approach of first looking at theory, then at phenomena.
- 1.3.3 Discovering what is the phenomenon.
- 1.3.4 A spirit of co-operation between researcher and those researched.

In other words, what is the phenomenon that is experienced and lived (i.e. in this study, what was the process of acquiring and losing bilingual proficiency)? How did this phenomenon show itself, (i.e. what residual French proficiency was observable in the three children studied)? (Valle and King, 1978).

In attempting to clarify what was learned and forgotten,

I followed four basic steps which are a modification of Colaizzi's (1972) four steps (Fig. 1-1 overleaf).

#### Step A

The first step involved describing what was the unique event; that is, what was learned and forgotten. To discover the extent of the children's forgetting, they participated in recognition and recall tests, in both structured and unstructured tasks. My description of their recognition and recall of French (Chapter Six) inevitably bears the slant of my own perspective : as a participant in the children's original learning process, I was able to use testing items which were in daily family use two years prior to testing, and had a good idea of the extent of their bilingualism at that time. In a study of this nature, the perspective of the researcher is part of the event as a whole, for as as 'privileged observer' (Moncrieff, 1978) I was part of the learning and forgetting process.

#### Step B

The second experience involved getting the children's experience of the testing event. This step required a 'co-researcher' relationship with the children. As Keen says,

FIGURE 1-1STEPS IN PHENOMENOLOGICAL STUDY

	own experience	other's experience
*texture	A	B
*structure	D	C

Modified from Colaizzi's four steps in Reflection and Research in Psychology (1973).

\*The terms "texture" and "structure" refer to experience (see Keen, 1975, p. 35 for a diagrammatic explanation).

The "texture of experience" is the articulation of an event, what it was, from a personal perspective, in the language of the event.

The "structure of experience" is "a complex network of horizons that include some idiosyncratic meanings, some linguistic preferences" and an understanding of some already existing shared linguistic meanings (Keen, p.34).

"Their personal reactions are part of the event as a whole. The co-researcher relationship engages their own curiosity about the event and about their experience of it." (p.38).

Thus, the 'subjects' become co-researchers, for example, by offering comments about the tests (Appendices 1 and 2) and by offering comments on the strategies used to recognize semantic items (Appendix 8). The children's willingness to learn about themselves and their own memories is central to this study, as the 'co-researcher' approach is to all phenomenological research.

### Step C

The third step involved looking back at the general context of how the second language was learned and forgotten. The children's recognition and recall of French after a two-year hiatus could not be properly understood apart from the context of the two years spent in Niger; their general perspective - their attitudes to French and their intent, or lack of intent, to remember it (Figure 4-3, page 143) - increase our understanding of the empirical data. In the children's language autobiographies (Chapter Seven) we explore the thematic aspects of the learning and forgetting process in terms of the context of

these events.

#### Step D

The fourth step involved a return to my own perspective of what had occurred. In the concluding chapter of this study, I attempt to answer such questions as what forgetting does or does not seem to be, and what seemed to have happened to the second language in the children's memories. Having looked at the data from several different directions, I tried to integrate the various approaches, while recognizing that what data had emerged was not to be qualitatively measured or judged because of its changing nature.

### 1.3 The Generalizability of This Study ,

The phenomenological approach may be criticized on the grounds that different researchers might arrive at completely different results - that this study would not bear experimental replication. Indeed, with the 'privileged observer' status of the researcher, this is a likely outcome. Why study this event then, if it is relatively unique? What use can such research be to the general body of theory of language acquisition and language loss? As Keen says,

". . . every event both is and is not unique. We want to study unique events, but not only in their uniqueness. We want both to understand how the event is unique and how it is a manifestation of something more general. The concentrated exploration of a unique event facilitates both kinds of understanding." (p.30).

The discovery of common ties between the unique and the general depends on a clear description of an event, so that what is unique and what is general about it becomes clear. In the concluding chapter of this thesis, I will attempt to show the relationship between uniqueness and generality of my findings.

As a last point, I must stress that the general framework of research in this study is constrained by being in the applied linguistics/language education ✓ paradigm, rather than in a general education one; as such, it cannot be answerable directly, in the first instance, to the demands of educational theory and philosophy; likewise, the pedagogical implications contained in the final chapter are meant to be suggestive rather than prescriptive. As Corder (1981) says,

"The actual techniques by which it is to be realized are the province of the

language teachers. This is the point at which the applied linguist must hand over to his colleagues in the classroom . . . . " (p.78).

CHAPTER TWO2. ASPECTS OF SECOND LANGUAGE ACQUISITION

While the general field of language learning has been well worked in the past, the specific area of becoming proficient in a language and then losing that proficiency is relatively untilled. Fundamental questions are : What is involved in the process of becoming bilingual, before returning to monolingualism? How do cognitive and affective variables influence the process? In order to understand the bases of these questions, and to come to some tentative conclusions, I will review those theoretical aspects of second language acquisition which relate to this study, looking in particular at second language acquisition in childhood between the ages of 5 and 11. In doing so, I hope to try to clarify how age, milieu and mode of learning determine what is retained or lost from long-term bilingual memory.

2.1 Time Factors

One of the matters under investigation by psycholinguists concerns whether second language acquisition parallels first language acquisition. Two broad positions emerge from the wide range of views on this subject.

The first view holds that the acquisition of a second language does parallel mother tongue acquisition, in that similar strategies are used to become proficient (e.g. Cook, 1973; D'Anglejan and Tucker, 1975; McLaughlin, 1978). The second view holds that first language knowledge affects the acquisition of a new linguistic system, and that many of the difficulties involved in acquiring a second language can be traced back to influence and transfer of the first language (e.g. Lado, 1957; Bever, Fodor and Weksel, 1965; Jakobovits, 1969).

Recent studies have modified these two positions. Concerning the view that parallels do exist between primary and secondary language acquisition, Cook (1977) offers the compromise that the former resembles the latter only in the area of linguistic processes. Some research points to the developmental nature of second language learning, rather than to dependence on the first language. For example, Dulay and Burt (1974b) have discovered that of the errors made by young Spanish-speaking children learning English, 86% are described as intralingual (or developmental), while a mere 14% can be attributed to influence from Spanish (described as interlingual errors<sup>(1)</sup>).

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(1) See Appendix 9 for an analysis of the phonological errors in Miles' French recall test, after 2½ years of disuse : there were almost twice as many developmental (intralingual) errors as transfer (interlingual) errors.

✓As a 'participant observer', closely involved with the children's acquisition of French, I was able to follow their language learning process informally. ✓ While no systematic documentation was made at the time (apart from school reports, which show the children working above the average of the class in the second year (Kate : 15,8% above; Molly : 5,5% above; Miles : 12,4% above - on average) (see Appendix 4), their acquisition of French broadly followed the same pattern of several detailed case studies; for example, studies by Ravem (1968); Dato (1971); Hakuta (1976); Ervin-Tripp (1976). Huang and Hatch (1978) show similar developmental patterns in language learning by young children in a foreign milieu. While they reveal an early 'mixed speech' stage, when utterances include elements of first and second language, the evidence of creative construction is clear.

From her own research, Ervin-Tripp (1976) concludes that second language acquisition does parallel first language acquisition. While it may be argued that the second language learner makes use of prior knowledge, skills and strategies, she points out that this is also true of the first language learner. She contends : "The fact that the second language builds on prior knowledge is not what differentiates it from first language learning." (p.192). In other words, any learning builds on what was experienced before, at any age.

It is possible, then, to support the view that first ✓  
and second language acquisition resemble each other,  
with the proviso that other processes, such as those  
in the cognitive and affective domain, differ markedly.

Paivio and Begg (1981) also concur with the belief  
that interlinguistic interference is less important  
than the transfer view has suggested. However, there  
is a case to be made for interference. Studies such ✓  
as that by Hakuta (1974) show that the structures of  
the first language do interfere with those of the  
second, if a young child is exposed to another  
language before the primary language has been  
completely learned. ✓ What is more, ample evidence  
exists to the effect that adults manifest mother  
tongue interference at all linguistic levels, which  
does not always disappear, no matter how much exposure  
they have to the target language. We can infer that  
first language transfer may indeed influence second  
language learning in adults, and to some extent in  
sequential language learning by children; however,  
the unconscious strategies employed more commonly  
by younger children give support to the notion that  
first and second language learning are a similar  
process in this group. ✓

Let us turn to another central question, which is,  
do younger learners acquire a second language better

and faster than older ones? Closer scrutiny of the subject is required to determine what elements are involved. These will be examined under the divisions of physical and cognitive factors; affective factors will be considered at the end of the chapter.

### 2.1.1 The Physical Domain

The debate continues over whether learning a second language is easier for children than for adults (Penfield and Roberts, 1959; Lenneberg, 1967; Scovel, 1969). Its epicentre is the argument for cortical lateralization, which holds that a neurological difference exists between the language learning capacity of younger and older learners.

Krashen (1975) rejects Lenneberg's neurological basis for child/adult differences, although he allows for the possibility that by age 5, the completion of lateralization of the brain could represent a biological barrier to natural language acquisition. His hypothesis conflicts with the common observation that children often acquire authentic second language speech, long past the age of 5, in a foreign linguistic environment. The two older children in my study are evidence of this. There remains, however, an instinctive feeling that the plasticity of the brain does change with age.

Penfield's statement :

" . . . that before the age of 9 - 12, a child is a specialist in learning to speak. At this age, he can learn two or three languages as easily as one" (p.254)

is both too broad and too limited. It is too broad in that the characteristics of the learning situation must determine how easily a child acquires a language. Ervin-Tripp (1973a) makes the rather obvious point that the difference in what learners hear and what they are expected to say is very influential; in addition, the degree of formal correctness required from the start makes for radical differences in acquisition. (2)

Penfield's assertion is also too limited in that it implies that adults cannot learn two or three languages as easily as one. This is simply not so; we know of adults who acquire second languages easily during the course of their lives. Moreover, Hill (1970) cites evidence that adults in other societies do so as a matter of course. Hill suggests that social and cultural roles and language

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(2) The children in my study are all aware of the distinctions between 'schoolboy French' and 'the other French-fluent French'. See language autobiographies.

attitudes offer an alternative to the younger/older learner distinction. In the Southern African context, examples abound of individuals acquiring other languages after the 9 - 12 year old optimum period. As Van Wyk (1978) remarks : "Multi-lingualism is a reality which no South African can escape" (p.29). He adds that early natural acquisition of a second language is not general in South Africa. Late acquisition occurs more frequently, depending on contact at school, work and social environment. Certainly social and cultural roles, together with the type of linguistic demand made on the learner, must contribute more to second language acquisition than the 'rigid brain' theorists would allow.

As to whether younger learners acquire a second language more easily than older learners, H.D. Brown (1980) cites vast cognitive, affective and physical differences between a 3-year-old and a 9-year-old, which may positively influence second language learning in favour of the older child. Contrary to Lenneberg's belief in an early childhood advantage, McLaughlin (1978) cites evidence that adults may be better learners than children in almost every sphere. Asher and Price (1967), in an oft-quoted experiment (cit. Paivio and Begg, 1981), compared English-speaking students at age 8, 10, 14

and college age, as they attempted to learn Russian. Over several sessions, the oldest learners did twice as well as the youngest ones, and did significantly better than the 14-year-olds. McLaughlin (1978) also showed that in a classroom setting, older children did better than younger ones in second language learning tasks.

In Europe, Snow and Hofnagel-Höhle (cited in Sampson, 1982) conducted similar experiments to examine the learning of Dutch by English-speakers of three age groups : 3 - 5, 8 - 10 and 12 - 15. Like Asher and Price, they found that the oldest group showed the most rapid acquisition of all the language skills tested, leading them to reject the pre-puberty years as optimal time for language acquisition.

The findings from such experimental conditions were substantiated by Ervin-Tripp (1976), in a natural learning situation, who found that in every respect the older children in a 4 - 9 year old group had an advantage over the younger ones and learned better. Personal observation of the French acquisition process of the three children in my study tended to bear out Ervin-Tripp's findings, with one notable exception. The demands of school and the level of language expected from a 9-year-old meant that the

twins, Molly and Kate, acquired a broader vocabulary and more correct grammar than their 5-year-old brother Miles; however, he surpassed them in French pronunciation (see Appendix 3).

Asher (1969) observes that younger children do seem to be superior to older learners in the area of phonology, concluding that the younger a child is, the more likely he is to acquire accentless speech. This statement calls for two caveats. Accentless speech is a contradiction in terms, and as such is an invalid standard. In addition, Asher implies some natural limitation to the acquisition of native speaker pronunciation at an older age. While this may be so, (and indeed, there is much evidence in favour) once again, factors other than biological ones may contribute to this widely observed phenomenon.

Hill (1970) advises against applying the language acquisition situation of Western, adult learners in a global way, suggesting that a study of multilingual speech communities of different types might offer a different explanation for older learners' foreign accents. In a multilingual speech community like South Africa, social and cultural roles appear to influence phonation. While I know of no specific empirical evidence on the retention

or effacing of mother tongue accent on a second language, there is observational evidence that social forces, such as Afrikaans/English marriage, cited by Lanham (1978) can cause 'accommodation' - that is, reduction of differences such as accent, "motivated by a desire to empathize, be more favourably evaluated, etc." (p. 157). Conversely, affective factors could partly account for the maintenance of a foreign accent in a second language as an identity marker. ✓

While lack of inhibition and unconscious strategies may be of help, the very young child's advantage is limited by other factors. Children under the age of 5 may not even have control over their first language phonological system. ✓ While they may perceive the phonemic distinctions, young children may not always be able to produce the contrasts themselves. (3)

Research by Berko (1958) indicates that the average 6-year-old is still far from having mastered many

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(3) W.R. Miller, cited in Brown (1980, p.30), gives the example of a 3-year-old child who says her name is "Litha". "I answered 'Litha?'," says Miller. "No, Litha." "Oh, Lisa!" "Yes, Litha!" The child clearly perceived the contrast between English "s" and "th" but could not produce the contrast at age 3.

basic essentials of his first language. Cruttenden's (1974) study, involving intonation in children, suggests that intonation functions are still in the process of being mastered between 7 to 10 years of age, and perhaps even longer. Therefore, Asher's recommendation that for an authentic accent "the younger the better" needs some qualification.

✓ The critical period hypothesis for the phonology of a foreign language is given a further dimension by H.D. Brown (1980), who states that children who acquire a foreign language after the age of 5 may ✓ have a physical advantage in that "phonemic control of a second language is physically possible, yet that mysterious plasticity is still present" (p.49). ✓ Ervin-Tripp (1973b) finds that this is so, that for most features of segmental phonology, the children over 7 years old in her experiment learned faster than the younger children.

When learning French at age 9, however, Molly and Kate did not show such superiority in segmental phonology over their 5-year-old brother Miles. The reverse was true. (4)

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(4) For an assessment of the French pronunciation of the three children in this study, see Appendix 3.

The differences between experiment-generated behaviour and normal language use could explain such different results. The distinction between learning language and learning a language makes such generalizations of limited use. Having said that, I cautiously call to attention Ervin-Tripp's (1973a) statement that :

"There is strong evidence from natural settings that for children under eleven, language is sound, while for adults, it is sense." (p.78). ✓

Such a strong assertion begs for rebuttal, and a discussion of the sound-over-sense debate is included in the introduction to Chapter Six.

As a point of interest, there is some empirical evidence to substantiate Leopold's assertion of the earlier division of semantic and phonological properties in bilingual as opposed to monolingual children. Ianco-Worrall (1972) tested 30 Afrikaans/English bilinguals in two age groups, 4 - 6 and 7 - 9, for their ability to separate semantic elements from the phonetic elements of a word. In the younger group, 54% of the bilingual subjects operated on a semantic basis and only 8% on a phonological basis. The reverse proved true for monolingual children she tested : only one operated

on a semantic basis.

While this result points to sense over sound for young child bilinguals, sound over sense may be the modus operandum for children in the process of acquiring a second language.<sup>(5)</sup> However, my guess is that as young children learn the meaning of the sounds they are imitating, their attention turns to the semantic component of language rather than the phonological one.

#### 2.1.2 The Cognitive Domain

Cognitive factors involve the complex areas of knowledge and comprehension, and their application to learning a second language. When comparing younger and older learners, the assessment is complicated by the fact that there are many changes taking place in a child's mental life, whereas such cognitive aspects are relatively stable in adults.

Few people, observing the intricacies of the second language learning process, would still agree

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(5) The children in my study remember focusing initially on sound and intonation when acquiring French. Kate : "I remembered a word . . . that sounded interesting" (one of several examples in the language autobiographies of the children's attention to sound).

with Bernard (1951) that :

"Learning a foreign language consists fundamentally in the acquisition of an additional set of meanings for old familiar meanings"

and that individuals approach a second language

". . . with the mechanisms of the first language already fixed in thought" (p.89).

The idea that the brain has acquired its full set of meanings at any age denies the learning that goes on through life, reflecting the individual's total experience. Certainly, vocabulary-learning goes on through life even in such stable cultures as village life, says Ervin-Tripp (1976), where the social nuances of certain vocabulary change and grow continually.

Naturally, the knowledge of the first language will provide some kind of organizing framework, but as McDonagh (1981) points out, "learning new words by translation equivalents alone is notoriously misleading" (p.66). While word-for-word translation is a common response to an interlingual situation, multiple discrimination must eventually take over in the second language learning process, since a word

may be able to take on several meanings.

But before we can broach the question of how the child comes to acquire linguistic knowledge, we must ask what the child typically learns at each stage of his first language development. No discussion of cognition and language in children would be complete without reference to Piagetian theory : while it is impossible to give a detailed description of his model of learning, I will mention the two hypothetical stages of cognitive development which pertain to the children I studied.

These stages concern the pre-concrete operational and concrete operational stages of development. They are not to be associated rigidly with actual age groups; Piaget (1970) only claims that they occur in an observable sequence. Generally though, between the ages of 4 - 7, a child, in the pre-concrete operational stage, is dominated by his perceptions, overemphasizing some elements and underemphasizing others. In Piaget's heuristic model, children of this age have more difficulty representing an action and its results in thought; they tend to limit themselves to the material execution of the action.

By 8 years of age, a more basic stock of concepts

has been accumulated; the concrete operational stage is characterized by the growing interiorization of language, so that more systematic linguistic organization begins (Berlyne, 1964).

Karmiloff-Smith (1979) uses the Piagetian framework to analyse the relationship between language and cognitive development. She reports from an experiment with young learners, that while the language used by a 5-year-old is often correct on the surface,

"A further characteristic of language after 5 appears to be the gradual passage from extra-linguistic to intra-linguistic reference, both in spontaneous utterances, and later in metalinguistic awareness" (p.323).

I do not mean to treat learning and memory as synonymous in that the latter is influenced by previous learning; yet I believe the results of Karmiloff-Smith's tests indicate how the mental organization of a child of 5 - 7 would largely prevent Miles from permanently retaining unrehearsed verbal material with which he had an easy familiarity during the pre-concrete operational stage. At the twins' learning age of 9, they were already conceptually ready to take control of more complex linguistic

structures. Karmiloff-Smith considers 8 years of age to be a frontier stage in that only after this age does language seem to become solely the instrument for representing and communicating thought.

Theoretical line-drawing of this nature begs for rebuttal. Heilenman (1981) disputes the assumption that a relatively constant time relationship exists between linguistic development and cognitive maturity. She maintains that despite differences in age, background and instruction, second language learners appear to process linguistic input in a highly similar manner, and to manifest many of the characteristics of first language learners. She bases her view on the results of the Kiel Project on Language Acquisition in Germany, and on such studies as the one done by Kessler and Idar (1979), which compared naturalistic acquisition of English by a Vietnamese mother and her young daughter. The conclusion drawn from their research is that adult acquisition is similar to child acquisition, with the proviso that certain differences were attributable to cognitive and neurological development.

Tremaine (1975) comes to a similar conclusion after testing school children and university students who were all studying French as a foreign language;

however, a certain level of cognitive maturation was related to successful performance on items involving syntactic-semantic relationships. It is debatable whether there is a time relationship between second language acquisition and cognition: certainly cognitive factors play a role which is still poorly defined, since other variables are involved in the vastly different situations of second language learning.

Piagetian theory is a useful predictor, however, stressing that language is only one of the functions which enable a child to form mental representations. It emerges from self-reports by the youngest child in my study that drawing, playing and making mental images were other ways of forming concepts at that stage. (6)

Gatherer (1980) explains how play is a fruitful source of language learning, since it

" . . . helps the child to experiment, trying out newly learned words and phrases and different language functions".

He adds that

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(6) See Miles' language autobiography, p. 1, for his description of learning French.

"The absence of pressure helps them to resist frustration, so that they give up less readily." (p.39).

The older children in my study admit to this kind of frustration under pressure; the younger child, from his own testimony and from personal observation during the second language acquisition period, does not appear to have felt much frustration. <sup>(7)</sup> His learning of French was secondary in some ways to throwing and catching sandrocks and playing chase.

The notions of pressure and frustration in learning a language brings up the question of cognitive style, ✓ which relates to both the affective and cognitive domains. Few conclusive research findings are available on the learning style which leads to the most successful language learning, or the longest retention in memory. More relevant variables seem to be those of age and cognitive development. The different rates of forgetting shown by the children in my study indicate that different cognitive processes may have been involved in their learning of French. <sup>(8)</sup> It is difficult not to conclude that

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(7) See Molly's language autobiography : "I burst into tears . . . 'cos I used to get so frustrated . . ." etc.

(8) See Chapter Seven.

levels of cognitive maturity do relate to the long-term mastery of particular linguistic structures.

## 2.2 Process Factors

Before continuing, I must address the question of how much French was learned by the subjects of my study, before it was forgotten. What process must a person go through to become bilingual? What types of learning are involved? A schematic representation of the second language learning process, explaining each component, will be found in Figure 2-1 (page 44). This is a useful model, although obviously individual learners and contexts vary. I will first examine several aspects of the model which need clarification.

### 2.2.1 The Formal/Functional Distinction,

The distinction is clearly made by Cummins (1979) who divides language proficiency into two categories. The first he calls the "cognitive academic aspects of language proficiency" (CALP), ✓ which are related to the development of intellectual skills in school contexts. The second he calls "basic interpersonal communicative skills" (BICS), ✓ which are related to oral fluency, accent and communicative competence; these are considered to be cognitively less demanding than CALP.

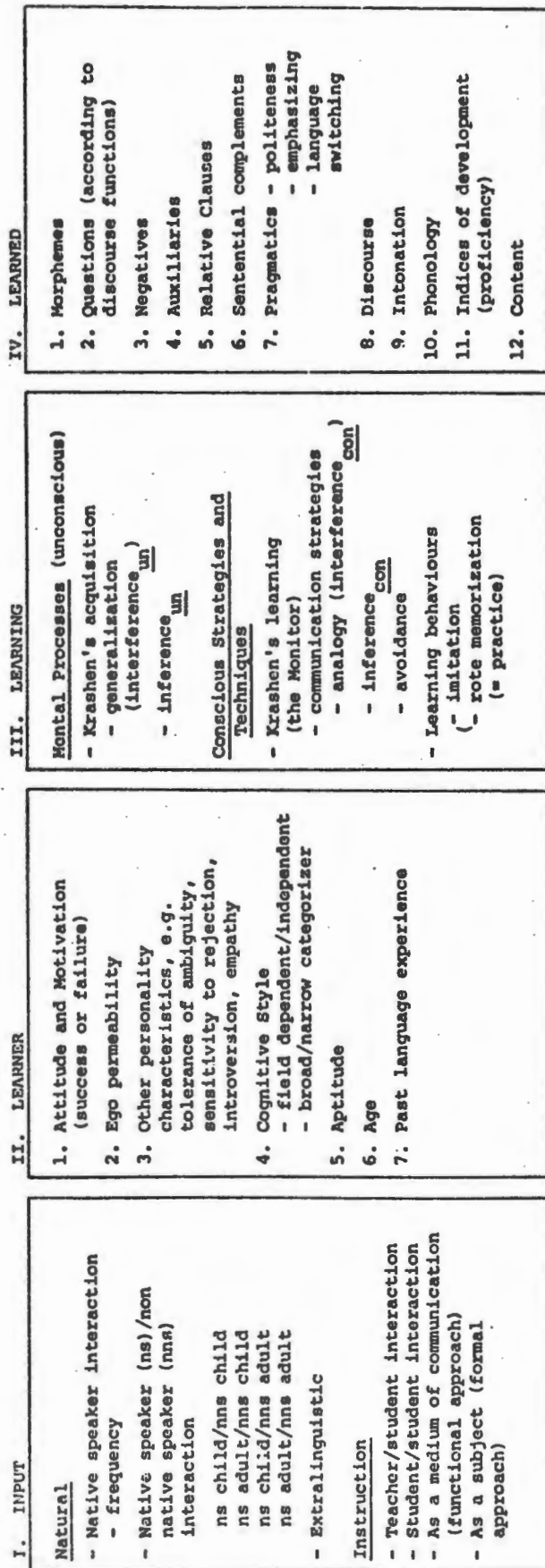


FIGURE 2-1

A Model of How Second Languages are Learned (Swain, 1977, p.16)

Cummins calls CALP "language which is used to explain, to classify, to generalize, to abstract, to manipulate ideas, to gain knowledge" (p.5) which he considers to be essential aspects of the increasing cognitive demands placed on students as they progress through school. He argues that CALP is cross-lingual : skills can be transferred between languages. Indeed, fears expressed by the children in this study, over whether they would be able to read, do maths and so on in English, having spent two years learning in French, proved to be unfounded. ✓

BICS would seem to refer to the language used in daily activity; as such, this type of language would be actively reconstructed with each encounter with the environment or another human being. It is possible to infer that the internalization or retention of verbal material of the CALP variety is more likely than that of BICS, since the language user is presumably more attentive to the former. CALP and BICS may be related to the semantic/episodic memory distinction, discussed at the end of Chapter Three. /

### 2.2.2 Street or Classroom?

It might be worthwhile to compare some of the

differences between formal and informal learning contexts, since the merits of natural acquisition over formal learning is a subject of much debate.

C.P. van Parreren (1976), having studied the empirical evidence of the restricted code<sup>(9)</sup> used in early language teaching, concludes that

"The effects of the language environment are overwhelming, even when they are compared with a concentrated effort ✓ within the school" (p.137).

That is, school learning, according to van Parreren, can never compete with language acquisition in natural situations. There is some proof to contradict this view. Swain's report on bilingual education, mentioned in the next section, states that classroom environments can indeed provide an elaborated speech code. Swain's model (Fig. 2-1, page 44) properly includes both natural and school inputs together. Despite this, the all-or-nothing comparison between school and street continues to be made.

In an example of this, Macnamara (1971) contrasts

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(9) See Bernstein (1972) for a discussion of restricted/elaborated code in "Social class, language and socialisation".

the child in a natural versus a formal milieu :

"In the street he will not be allowed to join in the other children's play, not be allowed to use their toys, not even be treated by them as a human being, unless he can make out what they say to him, and make clear to them what he has to say. The reward for success and the punishment for failure is enormous. No civilized teacher can compete." (p.21).

While ostracism in the playground is verified by the twins in my study, <sup>(10)</sup> they also attest to strong pressure in the classroom, before they had mastered the forms of French. Cummins (1979) confirms that when a foreign child is submersed in an unfamiliar school language environment, lack of proficiency in the school language may be treated as a sign of limited scholastic ability. Certainly the learner may perceive this to be the case. The twins, who had been held back in school for a year until they caught up with the necessary French skills, keenly felt the need to show proficiency in class. <sup>(11)</sup>

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(10) Kate in her language autobiography : ". . . [the girls] were so catty! They treated me like an absolute dope 'cos I couldn't speak their language!"

(11) Kate (in language autobiography) : "I didn't want the teacher to think I was hopeless . . . because I was so far behind everybody else."

Thus, for them both playground and classroom contexts ✓  
 were linguistically demanding in different ways.

It seems pointless to compare school learning unfavourably with street learning in the way of van Parreren and Macnamara, despite observational evidence of the superiority of 'natural' acquisition. ✓  
 Success in language acquisition is also related to such factors as the need to succeed, cognitive development and exposure, whether in a street or school context.

### 2.2.3 Classroom Instruction : Learning by Immersion

Swain's (1981) report on the St Lambert experiment specifically concerns street versus natural acquisition of a second language. Anglophone children in Canada were immersed in a French language school curriculum from kindergarten classes onwards. After a year, despite no out-of-class French contact, the level of French proficiency was impressive :

"The results of the experiment to date indicate . . . a very high level of skill in both receptive and productive aspects of French." (p.233).

Interesting evidence emerges from the experiment after a period of learning, concerning the relation-

ship between age, cognitive development, and learning. In a study of the French proficiency of different groups of learners, Swain (1981) was surprised to find that students who had accumulated 1 400 hours of French, starting at age 12, obtained test scores equivalent to students who had done over 4 000 hours of French, starting at age 5. This would seem to contradict the belief that young children learn a second language more easily and more rapidly than older children. Swain concludes that in school settings, older learners learn some aspects of a second language more efficiently than younger ones. She attributes this to more mature cognitive levels, and a better ability to abstract, classify and generalize on the part of the older children, that is, to use CALP.

This may be so, yet the rapid French acquisition may well be the result of the higher demands and expectations placed on the older students in a school environment, which would significantly accelerate their rate of learning. Furthermore, by age 12, pupils have already mastered the skills of reading and writing, so that they are able to focus their energies on mastering the forms of the second language. The younger learners simply have different learning tasks. One wonders whether the result of Swain's testing would have been the same

if the younger learners had not been involved in the task of literacy for much of their early schooling.

Despite the more rapid rate of learning by the older learners, Swain's test offers some basis for the argument that since older children show a preference for a conceptual type of learning, their language learning task might, in fact, be harder than that of younger children : younger learners such as those in Swain's test do not generally have the range of skills to perform complex tasks in the second language, such as making analogies, classifying and so on. As a result, the demands that older learners face mean that while their task may be harder, their resulting competence may be more substantial.

#### 2.2.4 Classroom Instruction : Immersion versus Submersion ✓

Immersion programmes, such as the Canadian one cited previously, allow pupils to engage in a wide range of language activities, and there is evidence of rapid, efficient acquisition of bilingual skills. In such programmes, the teacher is the sole model for the target language, since the pupils generally ✓ share the same home language.

Swain (1978) states that despite superficial

comparisons, immersion and submersion programmes are radically different. Deverensky et al. (in La Fontaine et al., 1976) characterize submersion in a language such as French as :

" . . . multiple language models, lack of formal instruction, necessity to communicate with French classmates and day-to-day exposure to French culture." (p.209).

Thus the focus of the language acquisition process tends to shift from the teacher to the learner.

Submersion programmes, unlike the St Lambert project, ✓  
are not implemented on an official basis. In a submersion situation, the foreign child finds himself among native speaking peers, within a school system operating in their native language. The foreign learner can be isolated, for often both teacher and pupils are culturally as well as linguistically different from him. In achieving second language proficiency, the learner may experience a conflict.

Guiora et al. (1975) say that to speak a second language authentically means taking on a new identity. This can be an ego-enhancing experience; however, if a child learner is ridiculed for his attempts at the target language, he is likely to feel personally ridiculed. While this may give a powerful impetus

to mastering the forms of the target language, there is a danger of some crisis of self as well as language identity. One advantage of immersion over submersion is that functional bilingualism, involving a school/home language switch, is expected and encouraged. Problems of identity are not a serious factor. ✓

In support of the submersion approach, Dulay and Burt (1974b) submit that

" . . . if first and second language learning are indeed analagous processes, the submersion approach may prove very effective as a medium of instruction for it stimulates most closely the native language acquisition conditions, which allow the learner to use his inherent language strategies." (p.96). ✓

The sheer logistical problems of such an approach make it a rather impractical pedagogical suggestion. In addition, it seems far-fetched that the submersion approach, with its attendant culture shock, can be equated with native language acquisition. ✓  
Discounting cognitive differences, the strange linguistic environment tends to instill a fear of failure into the learner which is unparalleled in mother tongue acquisition. Moreover, children learning in a foreign milieu do not have 18 months

to listen before being required to speak (Ervin-Tripp, undated, p.3).

Submersion is more akin to the experience of the immigrant child than to native language acquisition conditions. Other children who face the submersion situation are, according to Beardsmore (1979), the children of migrant workers, minority ethnic groups, or children, like the ones in this study, who reside in a foreign country for a relatively short period of time. ✓

#### 2.2.5 Conscious versus Unconscious Learning

The relationship between conscious 'learning' and unconscious 'acquisition' of second languages is termed 'The Monitor Model' by Krashen (1981). It ✓ rests on the assumption that there are two distinct processes through which control of a second language is reached. In 'acquisition', sounds, words and sentences are woven together with the total sensory input of the surrounding environment, in much the same way that a first language is acquired. In contrast, Krashen describes 'learning' as the interaction of pupil and teacher, during which various features of the target language are revealed. Learning and acquisition can occur simultaneously, as it did for the children in this ✓ study.

Krashen's model raises some questions about how 'learning' a language may involve different encoding processes to 'acquiring' a language. Further discussion of this belongs to the next chapter.

The conscious/unconscious distinction is a useful one when looking at the effect of formal language instruction in the classroom. It does not, however, explain much about how second language learning takes place under natural conditions. The Monitor Model is too rigid to be applied in many language situations. For example, learning a second language in a foreign milieu obviously favours unconscious learning or 'acquisition', while learning in school emphasizes conscious 'learning' processes. Yet much of the informal 'acquisition' of my subjects was based on habit formation theory - on repetition and practice, resembling classroom drills. In the same way, much of their conscious 'learning' in the classroom was concerned with content subjects, in which the focus was not on language, but on information.

This does not, of course, deny that a distinction exists between conscious and unconscious processes, but merely that the two overlap. This overlap is evident in the statement made by Molly after the

French recognition test.<sup>(12)</sup> Her natural/formal situation when learning French has caused a blurring of the Monitor Model, so that in her case, at least, I must concur with Felix (1981) that

"Foreign language learning under classroom conditions seems to partially follow the same set of natural processes that characterize other types of language acquisition."  
(p.108).

#### 2.2.6 Rote Learning or Creative Construction?

In sink or swim circumstances, rote learning appears to be a common survival strategy. The use of formulaic speech has been documented by several researchers, and was observed as an early French learning strategy by the children in my study. In the formulaic speech they used, whole phrases became vocabulary items,<sup>(13)</sup> in the same way that infants make holophrastic utterances in primary language learning. The units of rote learning,

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(12) Molly (after first recognition test) : "I'm afraid of saying anything because I'm afraid of not saying correct grammar. I'm not concentrating on what's being said. The answers pop out!"

(13) Miles (in language autobiography) : "I could say 'I don't understand'. So, if somebody said something to me and I didn't understand, I'd just say this word."

according to Fillmore, are larger in a submersion ✓  
situation than in a normal second language-learning  
classroom. In other words, these utterances serve  
social functions, and can be quite lengthy,  
frequently reflecting classroom routines and games.  
Keller-Cohen (1979) concludes that these large  
analytic units, linked to clear situational contexts,  
are the result of a child's search for the global  
properties of language, in which she is joined by  
Huang and Hatch (1978) who found that their 5-year-  
old Chinese subject was

"capable of initiating amazingly complex  
sentences, almost from the start, and  
to attach a global meaning to them."  
(p.131).

Fillmore (1979) followed the progress of a group of  
Chinese 6-year-olds who had recently come to the  
U.S.A., to find out what they learned first. She  
soon discovered that the phrases they learned "didn't  
look much like the ones in the phrase book". From  
her observations, she concluded that the children  
learned language partly to defend themselves, which  
points to the influence of affective factors. They  
learned from the situation what to say, rather than  
analyzing the precise meaning. In a different  
study (cited in Vihman, 1980), Fillmore indicates  
that in the first two months she observed five

Spanish-speaking children learning English, the children's utterances ranged from 53% to 100% formulaic. She says :

"The strategy of acquiring formulaic speech is central to the learning of language . . . It is this step that puts the learner in a position to perform the analysis which is prerequisite to acquisition."

(p.640).

Such routine formulae seem to be contrary to the creative construction process generally claimed for language. This is not necessarily so, as Fillmore points out. The process of generating linguistic rules on a trial-and-error basis is greatly facilitated by this initial input. In the case of the twins and their brother, the classroom context as well as the playground tended to favour rote learning, which proved helpful in the early stages of learning French. (14)

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(14) Molly (in language autobiography) : "I used to work really hard . . . learning . . . my 'recitation', and if I got a good mark, then I'd feel confident and I used to actually go up and talk to people."

### 2.2.7 Order of Acquisition

The individual nature of learning a second language, due to the many variables involved, gives rise to difficulties in delineating a universal pattern of acquisition, such as that found in the development of a first language. Some general statements may be made from the particular, however, such as a study by Ervin-Tripp (1976) who documented the acquisition of French by English-speaking children in Geneva. Two of her findings were : firstly, after only a month, in a foreign milieu, even when a child is silent, he has learned a lot about the language and can understand a good deal; secondly, early conversational efforts tended to concentrate on gesture.

These conclusions underline one difference between natural and formal learning situations; in the latter, the emphasis on correctness of form rather than conveying meaning tends to inhibit gesture.

H.D. Brown (1973) states that

"language is one of the primary means of emphathizing; kinesic, kinesthetic, proxemic and other paralinguistic modes of communication facilitate the process . . . ." (p.235).

The children in this study report using some of

these facilitators in their early efforts to communicate in French. (15)

After the silent/gesturing stage is over, what is the first linguistic step taken by the newcomer to a foreign milieu? To take the example of the children in my study, in order to do their lessons in French, and to communicate with their peers, they had to learn a large number of words and their order - often in strings, general grammatical categories, and in the process, phonetic, semantic and syntactic distinctions. While learning, they made many mistakes and were often corrected by teachers and peers. (16)

The submersion situation differs somewhat from ✓ learning through immersion, in that in the latter situation, correction generally rests with the teacher. From Lambert's tests (1953), a profile of language learning in French immersion programmes emerges, according to which vocabulary-building comes first, and the associational aspects of culture come last. Submersion situations require a more ✓ adventurous approach than learning the new language

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(15) Molly (in language autobiography) : "When people try to explain something, they just sort of wave their hands about."

(16) Ibid. : "In the beginning, everyone was always coming up to me and saying, 'You said this wrong and you said this wrong; it's said like this.'"

word by word, such as the formulaic speech discussed in the previous section.

### 2.3 Content Factors

An important theoretical and practical aspect of this study is bilingualism. What exactly is a bilingual, and could the subjects of this study have been considered bilingual after two years in a French-speaking environment? Is it possible, as Albert and Obler (1978) put it, to have a notion of what is meant when one says that someone is 'better' or 'worse' in one language than in another? To answer this question, let us look first at :

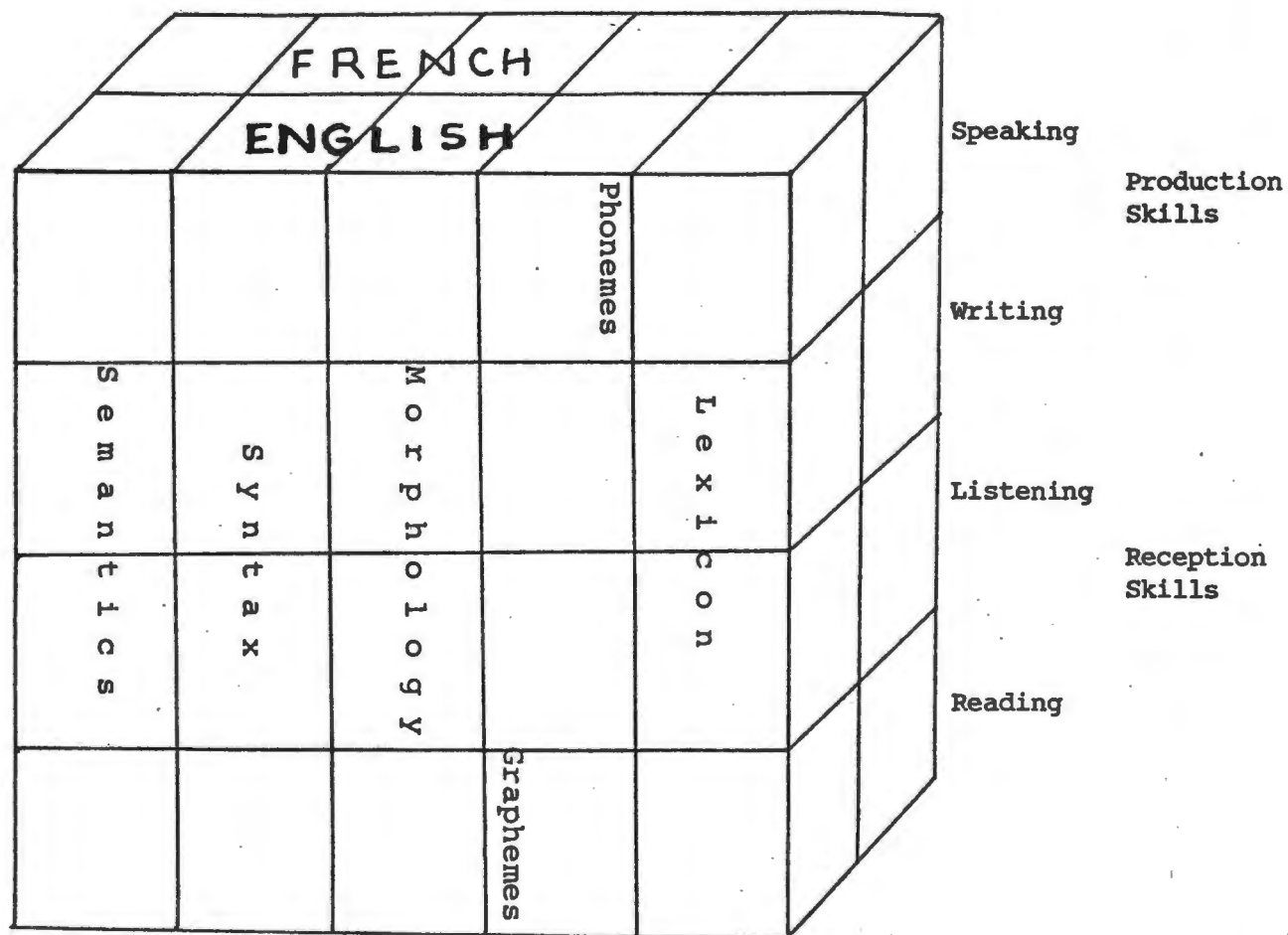
#### 2.3.1 Measures of Bilingualism

Jackobovits (1970) comments that both non-professional and expert judges have their own versions of 'folk bilingualism'. To the former, accent, pronunciation and fluency may be given a disproportionate degree of importance; thus, a person who speaks haltingly and with a poor accent might not be judged as being bilingual. To the latter, a person might not be deemed bilingual unless he had equal facility in two languages; then again, he might only need to understand a second language to be an 'incipient' bilingual.

There seems to be no general agreement about how well a person must speak a second language before he can be called bilingual. At one end of the continuum, Macnamara (1967) accords the title of bilingual to anyone who possesses at least one of the skills, even to a minimal degree, of a second language. Cohen (1975b) supports this limited view on the grounds that this definition takes into account different areas of skill, from those of very young children who understand without speaking in each of two languages, to those of an adult, who can read but not speak two languages. Cohen's bilingual measure (Figure 2-2, overleaf) is a useful gauge for establishing degrees of bilingualism in the different modes of language.

Malherbe (1943) also believes that bilingualism is a question of degree, adding the comment that bilingualism is not necessarily equilingualism, which may represent equally poor skills in both languages. Malherbe divides the continuum of language ability into six stages, each meeting certain practical situations in South African life. Such a scale may be of use to a language teacher, but for the purposes of this study, there is no particular advantage in defining the degree of bilingualism in this way.

Using Cohen's diagram (Fig. 2-2 overleaf), I would



("A Sociolinguistic Approach to Bilingual Education", 1975: Newbury House.)

FIGURE 2-2

Andrew Cohen's Syntax Measure

judge the three children in my study to have been functionally bilingual in all modalities of French, after they had spent two years in Niger. Their school marks show they fulfilled the French language requirements for children of their ages (see Appendix 4).

Following Cohen's chart, a person would be described as a balanced bilingual if he was equally skilled in all aspects of both languages. This would avoid the "naive notion" (Haugan, 1956, p.83) that a language is learned when an individual has acquired fluency in the basic patterns.

The other end of the continuum is Bloomfield's (1933) definition that bilingualism occurs when perfect foreign language ability is not accompanied by loss of the native language. Few people would qualify under such a definition, despite its common coinage. I do not doubt the existence of many such balanced bilinguals, who demonstrate native language proficiency in more than one language; however, the speech of most adult bilinguals manifests the influence of one language on the other, even if only in the area of lexis. More often, accent, intonation, syntax or use of idiom show that the speaker is more dominant, in varying degrees, in one language or the other. Children who are brought up in bilingual

homes may be truly balanced bilinguals as adults, if they live in a bilingual society such as South Africa, but this is rare.

The psycholinguistic concept of the organization of languages in such balanced bilinguals will now be considered.

### 2.3.2 Compound versus Co-Ordinate Distinction ✓

An approach to how bilinguals organize their languages involves the compound/co-ordinate distinction developed by Ervin and Osgood (1954). According to them, a difference in brain organization arises from the cultural and linguistic contexts in which bilinguals acquire their languages. A true compound bilingual organizes both languages as a single system, whereas a true co-ordinate bilingual has two separate systems. In other words, a compound bilingual is thought to have one set of concepts with two sets of labels (this storage pattern would probably be the result of speaking two languages interchangeably since early childhood). A co-ordinate bilingual is described as having a separate store of concepts and labels for each language. The reason for this organization is caused, supposedly, by learning two languages sequentially - by translating and

associating the second language meanings with the meanings of the first language. The distinction assumes that learning about the world has taken place through the first language.

As Lambert (1969) recognizes, few people learn a second language in a purely compound or co-ordinate context, if such a distinction can be made. He assumes that for certain domains of his experience, a bilingual's languages are organized together, and for other domains they are organized apart.

Lambert adds,

"It must be assumed that with time and new experience, reorganization occurs." (p.443).

It is apparent from the transcript of a tape made three years ago (Appendix 1), that the youngest child, Miles, shows signs of compound bilingualism ✓ in his speech (code switching when the subject is school). It is equally apparent three years later that reorganization has occurred. While individual cases cannot justify or contradict a theory, the compound-co-ordinate distinction does not deal with the subtleties of natural second acquisition, as they appear in the children in my study.

## 2.4 Affective Factors

Affective variables is a rather vague term encompassing the social and psychological factors in learning a second language. They are the individual differences which filter experience. Affective learner behaviour reflects the attitudes, interests and values of the learner. As Kruger expresses it,

"In any form of research, the human element is present even in the most mechanized, automated designs . . ."  
(p.118).

The same applies to learning. Educational evaluation tends to focus on universal validity, yet if differences in learning and retention of a second language are apparent, even between identical twins, it is obvious that subjective factors are involved. The affective domain offers a potentially fruitful line of questioning in this complex area. Before considering specific occurrences, I will briefly consider what affective behaviour is and is not.

### 2.4.1 Affective versus Cognitive Behaviour

It is necessary to distinguish between affectively-based behaviour and cognitive behaviour. Popham (1975) clarifies the distinction as follows :

"In the first we ask, 'what will the learner do?' In the second we ask 'what can the learner do?'" (p.171).

We might add to this, what does the learner need to do. (A discussion of the instrumental/interactive aspect of language learning follows in Section 2.4.5).

As the affective domain focuses on the factors which influence an individual's dispositional tendencies, the cognitive domain focuses on the ways a person acquires and uses knowledge. Ingram (1975) explains the difference between the two, as they relate to children, thus :

"The child's drive, his need to relate and to be understood, is one of the central factors of his life., The intelligent interest which a student brings to the task of learning a second language is pale by comparison. There is only one way in which an adult can experience something approaching the intensity of drive which he brought to his first language, and that is by being in a comparable situation." (p.286).

The 'force' or 'drive' which charges language learning in a foreign milieu is hard to quantify. In an attempt to do so, Krathwohl, Bloom et al. (1964)

devised an affective taxonomy, which is theoretically interesting but seems somewhat removed from behaviour in a second language learning context. It describes receiving, responding, valuing and characterizing behaviours, which are only helpful indicators in a social context where learners can communicate with speakers of the target language other than the teacher.

Bloom's taxonomy does serve to focus our attention on such attitudinal variations as individual beliefs about two cultures, or resistance to learning a language, or the deliberate retention of an accent as an identity marker (mentioned in this chapter, Section 2.1.1). Such understanding of how learners feel and behave in a language learning situation is an "important aspect of a theory of second language acquisition" (H.D. Brown, 1980, p.102).

The effect of political traditions in a country such ✓  
as South Africa means that a taxonomy like Bloom's can be severely skewed. While bilingual education is usually seen as a way of encouraging total participation ✓  
in the society, obligatory learning of a school language which offers no such benefits can promote generalized negative attitudes towards this language. The refusal to learn Afrikaans in Soweto schools in 1976 stemmed partly from an attempt to force schools to use Afrikaans as a medium of

instruction; thus, as Kroes (1978) puts it,

"The issues involved have been complicated by factors which are not linguistic . . . " (p.181). ✓

Linking attitude and language behaviour, Glyn Lewis (1981) says,

"Clearly, no matter how favourable a child's attitude to maintaining his mother tongue, or to acquiring a second language may be, he is not likely to maintain a favourable attitude long if the learning conditions militate against him." (p.264). ✓

Normally this would be so; yet attitude variables are unpredictable enough so that occasionally, unfavourable learning conditions might promote language learning (see Chapter Six).

#### 2.4.2 Attitude and Second Language Achievement

A simpler gauge of attitude might be devised, involving a success/failure pattern. Oller (1977) quotes Nancy Bachman<sup>(17)</sup> who says that while it is

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(17) At the TESOL Convention in New York, March 1976.

often assumed that the achievement comes from positive attitudes towards second language learning, ✓ it is possible that the reverse may be true; high levels of attainment or rapid learning may in fact cause positive attitudes. The relationship between attitude variables and achievement are likely to be more significant when a learner is in the target language environment.

The children in this case study did not have a choice about learning French, thus it is hard to say if they were genuinely eager to learn or merely afraid of failing. ✓ From the language autobiographies, it is obvious that they experienced what Bachman described - positive attitudes to French caused by high levels of attainment, due to their particular situation. It is possible to speculate that negative attitudes in some second language learning contexts could be a strong motivating factor, although as a general rule, this would not be so. ✓

#### 2.4.3 Attitude versus Aptitude

By now it is apparent that it is difficult to quantify attitude variables. Even carefully worded questionnaires (Albert and Obler, 1978) on personal language history have not proved to be valid testing instruments, in that they do not predict language skill. These researchers have found that self-

evaluation questionnaires, asking questions such as "How good are you at speaking language X?" are more reliable in predicting experimental success or failure. Such questionnaires may be combined with language aptitude tests to predict proficiency in individuals, or between subjects.

Gardner et al. (1976) argue that the relationship between attitude variables and proficiency in a second language is certainly as strong as that between aptitude and attained proficiency. After reviewing several experimental studies, they conclude that :

". . . they differed with respect to the nature and number of variables investigated, but the conclusion warranted from all the studies was that motivational variables were related to second language achievement, and that the motivational variables were as highly related to second language achievement as were the indices of language aptitude."  
(p.199).

This support of a significant correlation between attitude and achievement is not shared by Lambert et al. (1963), who found no relationship between the two for older students in an intensive immersion course, although elementary level students

demonstrated a clear association of attitude variables and achievement.

From this we might conclude that attitude variables may not correlate highly with achievement for older students, or that they simply are not reliable indicators of possible success in learning a second language for people with little previous language learning experience. On the whole, for younger students, we may speculate that success at learning, plus encouragement from teachers and peers, is directly related to favourable attitudes towards the target language, which in turn is related positively to language proficiency.

#### 2.4.4 Aptitude and Second Language Achievement

Carroll and Sapon (1958) conceived the Modern Language Aptitude Test (MLAT) which has been widely used to predict the individual's chance of success in second language learning. The test involves number learning, phoneme recognition, spelling clues, words-in-sentences and paired associates. The results from large numbers of subjects are thought by Carroll to show that "language aptitude is significantly associated with success in foreign language study", although he admits that "the association is not very strong" (p.139). Oller

(1977) reveals that, in half the cases tested, the relationship was not significant, hence his conclusion :

"If attitude variables usually account for as much variance in language proficiency as do reputable measures of attitude, they account for very little variance at all." (p.177).

Generally there seems to be a singular lack of success at finding widely significant relationships between aptitude tests and second language learning success.

The results of the MLAT done by the three children are detailed in Appendix 10. A circular line of questioning emerges from this test. Did the twins perform better than most Grade 9 girls because they have a high language aptitude, or did they perform better because they have been faced with unfamiliar language tasks before and mastered them? Despite Carroll's claim that prior language training has little effect on scores, it is likely that intensive exposure to French actually improved the twins' ability to analyze linguistic structures (see discussion of Part IV of MLAT, Appendix 10).

One is left with the conclusion that each learner

is a unique complex of variables, defying categorization yet demanding attention.

#### 2.4.5 Instrumental versus Integrative Motives ✓

One last aspect of this area of inquiry is the theoretical distinction between integrative and instrumental motives in second language learning (Gardner et al., 1976).

The integrative motive refers to the degree the individual wants to learn the target language in order to blend in with the speakers of that language. The instrumental motive refers to the individual's awareness of the usefulness of the target language. In order to test for an integrative motivation on the part of the language learner, I might ask : "Would you prefer to play with an English-speaking child or a French-speaking child?" To test instrumental motivation, I might ask : "Would you like to do a job that required French?"

According to tests cited by Paivio and Begg (1981, p. 304), the higher the individual's integrative motive, the better they learned the second language. This does not prove to be a significant indicator in this study, since the need to integrate with

French speakers on the part of the children was at first instrumentally motivated. H.D. Brown (1973) brings out the same points as Guiora (Section 2.2.4) that even in cases of instrumentally motivated language learning, the individual is obliged to take on a new identity if he is to become competent in the target language.

If this is so, an intriguing question arises (Schumann, 1975). Could internal factors, such as the development of an integrative motivation, ✓ foster ego permeability to such an extent that the learner temporarily gives up his separate identity and incorporates himself with the target group? Could the children in this study only have access to French proficiency while they were integrated into a French milieu? The idea expressed by Lowie (cited in Haugan, 1956) that when he speaks German to Germans, he automatically shifts his orientation as a social being, may not be a wasted intuition. Several weeks after arriving in an English-speaking environment, one of the twins tried to speak to the other in French; she was rebuffed with the admonition, "We're NOT French".

Herein lies a clue to retention and access of a second language by children. French is not a

language but 'language' in an ego-involving sense. There is no doubt that the effects of experience and environment have strong implications for language learners and teachers.

CHAPTER THREE3. ASPECTS OF MEMORY

While the study of memory can lay claim to more experiments than almost any other area of psychology (Jenkins, 1974), a coherent model of memory to encompass the experimental results is elusive.

The study of memory can take two roads (Neisser, 1982). The high road looks for models of memory, for the structural aspects and the processing and storing mechanisms which are involved, using controlled experimental conditions upon which to base conclusions. The low road, in contrast, looks at specific manifestations of memory in natural settings, without control over learning conditions. The complexities of meaningful memory and conceptual learning as opposed to habit or rote learning came under this approach.

Between these two roads, there must be some connecting paths. In the past, memory theory has been based on data that was of conveniently short duration for laboratory study. Current trends point to the study of less arbitrary data. The aim of this chapter is to locate the interconnecting pathways between these high and low

approaches, and to come towards an understanding of the operations of memory.

To this purpose, I will look at the broad spectrum of theory and from it, construct a framework to fit a level of phenomenological experience.

### 3.1 Historical Background

#### 3.1.1 Retracing Trace Theory : Plato

What is memory? In the literature, memory includes many different states and processes. Briefly, it is an inclusive term for the learning and storage operations of the brain, and the persistence over time of information which may be recalled.

Anderson and Bower (1973) proclaim the study of human memory to be ". . . the supreme intellectual puzzle of the century" (p.1). Certainly, global problems of great urgency have not received the same kind of exhaustive attention as human memory. Great quantities of books have been written on the subject in the past 100 years, since Ebbinghaus began the experimental study of memory in 1897.<sup>(1)</sup>

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(1) Herman Ebbinghaus, in his work "Memory" - translated by Henry A. Ruger and Clara E. Bussenius - gives a remarkably lucid account of his experiments on himself.

Yet theorizing about memory is not just a pre-occupation of this century. Since the ancient Greeks, philosophers have pondered over the puzzle. Socrates must have thought about memory because Plato<sup>(2)</sup> includes a discussion of it in the Dialogue Theatetus. Memory is envisioned metaphorically as :

" . . . a wax tablet which we hold to the perceptions and thoughts, and in that material receive the impression of them as from the seal of a ring, and that we remember and know what is imprinted as long as the image lasts, but when the image is effaced, or cannot be taken, then we forget or do not know." (pp.254-255).

Plato's analysis that memory changes with experience and fades with time does not explain why some images "cannot be taken" or why some images endure. Despite this, the Platonic idea has endured to the present day in the form of trace decay theory, discussed in the next chapter. Aristotle expands the metaphor, describing how one thought can lead to another. Such was the pervasiveness of this idea, that associationism has lasted as an

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(2) Cited in Glaes-Göran (1980)

explanation for the mental activity of memory for two and a half thousand years.

The British Empiricist philosophers of the 17th Century expanded Aristotle's concept of memory based on the association of ideas. Their general doctrine advocated that an individual learns and stores knowledge or impressions in discrete pieces in his memory, with one-to-one connections between these elementary pieces. The classical associationist doctrines seemed rational and had a strong intuitive appeal; besides, there was no empirical way of refuting them at that time.

### 3.1.2 The Measurement of Memory : Ebbinghaus

Conventional wisdom was not put to the empirical test until Ebbinghaus invented a scientific method of examining memory. His serial recall method is described in his own work (1885) and in Young (1968), amongst others. The use of statistical notions to test the significance of his findings was a complete innovation. From these studies came the classic 'memory decay curve' which will be discussed in Chapter Four. Ebbinghaus' method emphasized objectivity and exactness :

". . . if use is made of the language

of psychology, . . . as in the case of all unconscious processes, expression can only be figurative and inexact." (p.122).

Despite his emphasis on objectivity, Ebbinghaus, for many reasons, was not altogether successful in his approach. He aimed for "a sort of uncontaminated purity" (Wingfield, 1979) by avoiding the influence of prior associations, but, despite his use of made-up 'nonsense syllables', Ebbinghaus had to admit that some were easier to learn than others because they reminded him of something in his experience. While his serial learning procedures have dominated memory research this century, Slameka concedes that ". . . his Haus is Ebbing" (in Young, 1968, p.123). Personal memory experience could not be eliminated from experiment-based theories.

### 3.1.3 The Rebuilding Process in Memory : Bartlett

Subjectivity was the very aspect of memory that Bartlett (1932) chose to investigate. According to him, the meaningless nature of nonsense syllables was calculated to make for a study of "the establishment and maintenance of repetition habits" (p.4).

Bartlett's objection did not deter several decades of Behaviourist 'stimulus-response' research. While Behaviourist models of memory are rather generally dismissed today, Bartlett's work on what happens to information in memory over long periods is still as fresh and pertinent as when he wrote it. He describes the active organization of past experiences into remembering :

"All incoming impulses of a certain kind or mode go together to build up an active organized setting : visual, auditory, various types of cutaneous impulses and the like, at a relatively low level; all the experiences connected by a common interest . . . on a higher level . . . They have to be regarded as constituents of living, momentary settings, belonging to the organism . . . and not as a number of individual events, somehow strung together and stored within the organism." (p.201).

Bartlett's subjects were British university students. The subject matter was meaningful - folk stories from other cultures - but in content and style, the narratives were different from anything normally encountered by the students. Two procedures were used :

- serial reproduction, which involved passing a story from student to student; and
- repeated reproduction, which involved the same student retelling the same story after various intervals of time.

Bartlett found that the same process of reproduction was common to both procedures. Holes in the stories were patched up with fresh material, to give them coherence. Barnes and Wingfield (1981) term this "a qualitative distortion in memory, rather than simply a loss of associations" (p.93).

Bartlett explains this human tendency to reconstruct the essential details as "an effort after meaning". Claes-Göran (1980), testing subjects according to Bartlett's method of serial reproduction, concluded that recall may be reconstructive depending on what the subjects judge to be the best retrieval strategy. The examples of cross-cultural recall (Appendix 5) show how individuals not only tend to reduce the subject matter to isolated details, but also pass the material through a subjective filter to make it consistent with their values, attitudes and beliefs.

Wingfield and Byrnes (1981) are right, I think, when

they say :

"Individuals do not behave as if they passively store associations between elements. Rather they seem to organize experience into their pre-existing systems of knowledge and belief. The attempt to make the experience fit these schemata sometimes leads to distortion, or in other cases, the schemata themselves may change." (p.95).

From the examples in Appendix 5, it is also apparent that certain details are judged to be more important, so that the memory can be accurate but highly selective. Bransford and Franks (1971) obtained results which appear to confirm the theory that memory is a constructive process. Subjects falsely recognized material which carried the same theme as previously presented material. Paivio and Begg (1981) infer from these results that the subjects had integrated linguistic ideas into a single entity, which could have emergent properties differing from and going beyond the information itself.

For those following the Bartlett tradition, memory can be as unique as the individual's experience. Variables such as age, academic background, method of training, rehearsal opportunities and personality

cause widely differing memories. His argument for subjectivity has had profound significance for memory theory because it changed the focus from the learning material to the learner.

#### 3.1.4 Memory as a Word Processor : Modern Times

A challenge to the view of the individual nature of memory came with the invention of computers.

Micro-processing, miniaturization and complexification (Marsh, 1977) gave rise to a new set of terms and a new model. After 1949, when Shannon and Weaver constructed an engineering model of information processing, it was difficult not to see human memory stores in terms of a computer memory bank. Instead of the Behaviourist 'stimulus - response' model, an 'input - output' model (e.g. Hunt, 1962) became commonplace. In essence, the learner is compared to a machine with a limited capacity system and a certain ability to receive, organize and recode input from the environment.

Tulving and Patterson (1968) argue against such restrictive models, suggesting rather a continuum of levels of perceptual processing, from analysis in primary memory to the formation of more permanent traces. Depth of processing was hailed

(Norman 1970) as a comprehensive approach which appreciated the complexity of the memory system. Like religion, however, every orthodoxy has its heresy and likewise, every theory has its counter theory. Criticism of the levels of processing approach is based on the grounds that as long as an independent measure of depth does not exist, the theory is not empirically useful.

According to Puff (1979), contemporary theory is now moving towards more cognitive and affective aspects of memory organization, involving many of the variables already mentioned in this chapter.

### 3.2 Time Distinctions

Memory systems of the past few decades have been dominated by time divisions. The tripartite division of memory into sensory memory, short-term memory and long-term memory (Kintsch, 1982) has been criticized for being too box-like and sterile. Kintsch defends it thus :

"This division is one of convenience; it does not imply that there are three separate, independent memory systems, and that a to-be-remembered item is put into one or the other of these memories and transferred between them as a secretary might store a letter

in different filing cabinets. Instead, there is a continuum ranging from its initial perception processing to its integration into a person's knowledge structure. There is only one memory system that functions as a whole."  
(p.165).

Adopting this convenient distinction, I will discuss first :

### 3.2.1 Sensory Memory

Sensory memories may best be described by an example; when you switch off the bedside light, for an instant the brilliance of the light still lingers in the memory - neural sensitivity retains a trace, which lasts a fraction of a second (Sperling, 1960).

Wingfield and Byrnes (1981) say that such sensory storage may briefly hold more information than anyone could possibly need or use. Similarly, Bugelski (1979) believes that in spite of the brevity of these afterimages, they can have a cumulative effect. Thus, despite its transitory nature, sensory memory may be very important in acquiring knowledge.

The visual store, known by some researchers as 'iconic memory' (Olson, 1973), is seen to be a particularly fruitful area for research. In an experiment done in the early 1960s, Sperling (1960) flashed nine letters visually for 50 milliseconds. He hypothesized that memory limitations might prevent the subject from remembering all nine letters, so he conceived a partial report technique whereby subjects only reported three specified numbers at a time. Through this method, he showed that all nine numbers had, in fact, been seen by his subjects at one time.

Adams (1980) reports that verbal information persists as a trace in the visual or iconic system for about 200 milliseconds; he says that if it is not selected for verbal processing in that instant, it fades away and becomes inaccessible. Recent research, such as that by Silverman (cited in Adams, 1982), suggests that messages - visual and verbal - can be presented subliminally, that is, so briefly that they are not consciously recognized. This is still the stuff of science fiction, but it gives rise to some provocative conjecture about the relationship between behaviour and unconscious mental processes. Since we are aware that much second language acquisition in natural settings is unconscious, sensory memory may play a more important

part than we realize.

Back in 1917, Palmer (1964) maintained that a person proficient in a second language acquires the bulk of his knowledge through subconscious assimilation. He guessed that less than 5% of vocabulary in such a person's lexicon is learned by conscious study.

This idea is impossible to verify, but fits what we observe about natural language learning.

The ability to retain sensory information for such infinitely short periods gives an individual a moment to process and code the information. If, for example, the stimulus event is an item of foreign language vocabulary, the learner responds selectively to different aspects of the word in a scanning operation. He might respond to such surface features as structural or phonemic aspects, or semantic features, after which he could write the word down or speak it aloud. He responds to the word-event according to his experience, the nature of the stimulus material, or according to the instructions he has been given if in a formal learning situation.

Tulving (1976) underlines the importance of the context in which a word occurs and the specific encoding operations performed on it, when it enters the memory system. Certainly these encoding

operations cut across sensory modalities. The youngest subject in my study showed auditory and visual recall in his effort to recognize items of French. (3) His response to the word "avion" showed both of these modalities. The importance of sensory memory in second language learning lies in the formation of such overlapping associative cues.

### 3.2.2 Short-Term Memory

Short-term memory (STM) refers, experimentally, to what an individual can retain less than a minute after exposure to stimuli. Some researchers consider it to last for about 18 seconds (Peterson and Peterson, 1959), this being the memory span of the people in their experiments. Others (Melvin, 1976) give STM a time span of 60 seconds. Such distinctions underline the difficulty of boxing memory into time frames, in spite of the convenience of being able to analyze it this way.

Researchers tend to agree that STM has a limited capacity store; that is, it retains a limited amount

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(3) (On being shown a picture of a boy playing aeroplanes) : "'Avion', I knew meant aeroplane. I remember in Niger, an aeroplane flew by and all the kids were shouting 'Avion! Avion!' and I looked up to see if it was a bird or a cloud, and then I saw it was an aeroplane."

of material for a limited amount of time. The active aspect of STM appears to be coding sensory stimuli into some form of language.

"Considerable early research seemed to show that memory after brief intervals is invariably coded as names or verbal description of experience." (Wingfield and Byrnes, 1981, p.11).

In a blurring of the distinction between sensory and STM, Cook (1977) holds that STM processes even visual information in terms of sounds in the case of learners above 5 years old. She states that semantic information is largely absent from the short-term memory store. While it is possible that this may be so, I question her assertion that visual information is recoded in terms of sounds, since there is evidence that verbal information may go through the reverse process of being encoded visually. While Cook admits that young children use some type of visual coding noted by Conrad (1972), her cut-off date of "up to age 5" is too arbitrary.

The STM concept was the central area of experimental memory study during the 1960s and 1970s. Atkinson and Shiffrin's (1968) model of memory proved to be particularly influential, because of its neat,

predictive experimental techniques (Figure 3-1, overleaf). The reduction of human memory into compartments brings it under control. This cognitively based model conceived input, transfer and storage mechanisms as voluntary. A more complete description of the model follows further on in this chapter.

Strauss (1966) cited flaws in this concept of reducing experience to physiological traces. He rejects the idea of stimulus as the dictator of memory :

"If this is the way impressions operated, memory would be like a warehouse where the most heterogeneous material has been stored in adjacent compartments, but there is no-one keeping a record." (p.63).

Strauss rejects such mechanistic models of memory as not true-to-life, saying that experience has an intrinsic temporal structure of time; it cannot be understood as a sequence of events following clock time. Nevertheless, the notion of traces and the need to fix time-limits on the structural capacity of STM remains a dominating theme in memory theory.

Tests to determine the span of STM involve

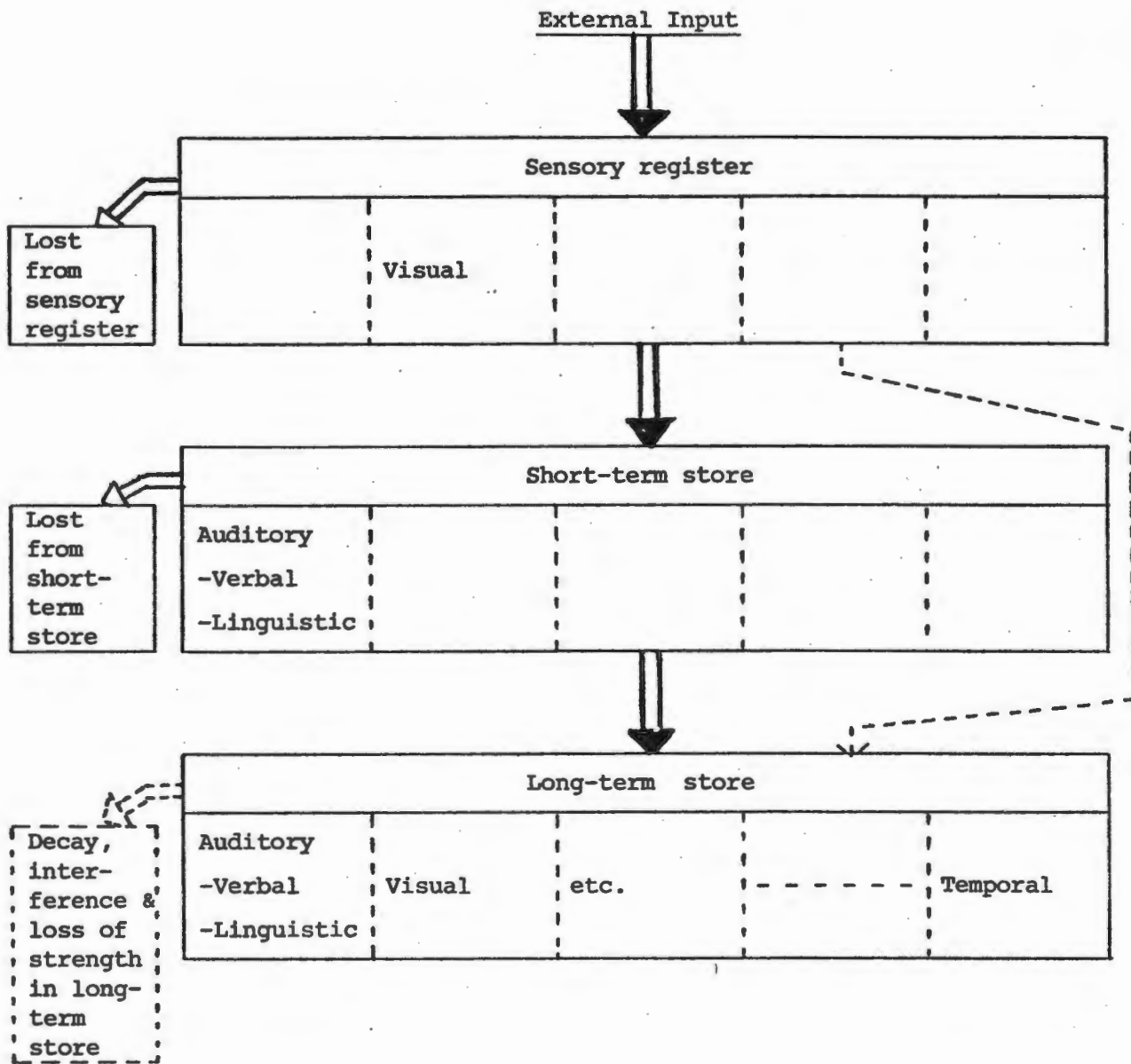


FIGURE 3-1

Information-Processing Model of Verbal Memory  
by Atkinson and Schiffrin

(From: Atkinson, R.C. & Shiffrin, R.M. "Human Memory - A Proposed System".  
in The Psychology of Learning and Motivation (Vol. 2). (eds.).  
K.W. Spence & J.T. Spence. Academic Press, New York, 1968.)

experiments like "Kim's Game", to discover how many unrelated items can be recalled in a stretch.

Miller (1956) fixed STM capacity at around  $\pm 7$  items. Cook (1977) holds that STM "is extremely limited in capacity and can process only three to four 'units' of information at a time" (p. 5). She concedes that children's STM is still a little-known field of study.

In experiments on short-term memory as it relates to language learning by adults, Lado (1965) contrasted the memory span of foreigners and native adults, and concluded that STM is shorter in a foreign language than in the native language. A corollary of these experiments was that memory span increases with mastery of the language. Cook (1977) tested Lado's conclusion that STM was most impaired in foreign adults with homophones, and least impaired in digit processing. In four experiments involving 90 adult foreign learners of English, she found support for Lado's hypothesis on memory span for lexical items and digits.

McDonough (1981) claims that digit names are easier to recognize than object names, because the former belong to a smaller set, which is more readily recognized. The names of colours seem to be retained as easily as digits, for the same reason.

A limited view of STM focuses on the aspect of holding information before it is transferred into long-term memory (LTM). STM is seen as a kind of vestibule to the main room of permanent memory. Miller (1956) rejoices in the neatness of this arrangement, seeing it as a

" . . . very orderly set of relations, describing what new seems an uncharted wilderness of individual differences" (p.96).

Like most theorists, Miller dismisses the variables which affect real-life memory in order to establish valid experimental results.

Wikelgren (1973) disputes the usefulness of these artificial divisions, on the grounds that the only difference between STM and LTM as defined by information processing theory is time (short exposure) rather than process.

### 3.2.3 Long-Term Memory

Melvin (1976) describes long-term memory as the mind's ability to retain and recall, without constant rehearsal, events that have occurred any length of time longer than a minute earlier. Unlike short-term store, long-term store is thought to have an

unlimited capacity; its content is assumed to have passed through a system during which it was highly analyzed, organized and coded to distinguish it from other material. An important aspect of the LTM model is that the encoding process has to facilitate retrieval from long-term store.

In conversation, when we use the expression 'long-term memory', we are thinking of something rather different from the period of one to three minutes usually involved in experimental research. From the perspective of second language acquisition, it is impossible to equate learning lists of uncontextualized vocabulary over periods of a few minutes with the memory tasks of natural language-learning. A broader approach is needed to describe how material is worked into the fabric of long-term memory.

Bugelski (1979) dismisses the long-term memory label as having "no special merit except as a contrast to short-term memory" (p.311); since the primary concern of this study is to look at memory for language over a period of several years, this distinction in the experimental definition holds little value as such; it makes more sense, therefore, to look at :

### 3.2.4 Very Long-Term Memory

Very long-term memory (VLTM) can be considered to cover general knowledge and also long past experiences. Knowing about language and knowing a language will be discussed later in this chapter; in either case, VLTM can be thought of as the repository of language. The process of retrieving a language from VLTM is the focus of discussion in subsequent chapters.

Retrieval from VLTM appears to involve a reconstruction process. Contextualizing the to-be-remembered material is important, since the process involves meanings - a semantic network in which events are placed in the context of other related events, according to the frame of reference of the receiver.

"If events are related meaningfully to what we know",

say Wingfield and Byrnes (1981),

"those events can be remembered much longer than, for example, a list of nonsense syllables." (p.11).

To point out how difficult it is to formulate any watertight conclusions about memory processes, I

would dispute even this, in certain circumstances. Nonsense syllables overlearned in a meaningful context<sup>(4)</sup> can be as durable as meaningful material.

The encoding process depends on the individual's frame of reference. Howe (1970) states that

"When we speak of distortions in memory, it would often be more accurate to speak of distortions in the material as it enters the retention system : once the material is stored, it is unlikely that much further distortion occurs" (p.77).

In other words, the memory system stores the results of our making sense of our experiences, rather than storing the experiences themselves, and then changing them.

Distortion in recall has certainly been recorded by Wallen (cited in Festinger, 1957). In his experiment, subjects learned a list of descriptive words, and over a period of time there was a significant tendency to change the list away from

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(4) From Molly's language autobiography :

Q. "Can you remember the first French you learned?"

A. ". . . half of it wasn't actually French - some of the things were 'chintôt, chintôt' and that wasn't really French."  
(From a chant game.)

information that produced dissonance. The list was reconstructed in memory from ego-deflating adjectives. Festinger's (1957) theory of cognitive dissonance involves such restructuring of information or altering cognition in memory to reduce external pressure.<sup>(5)</sup> This corresponds with the constructive nature of long-term memory which has already been discussed. Neisser (1967) explains :

"One does not recall objects or responses simply because traces of them exist in the mind, but after an elaborate process of reconstruction . . ." (p.285).

Testing this reconstructed memory in natural situations presents many difficulties. Recall and recognition tests are most commonly used, and these will be discussed in the following section on multistore models.

### 3.3 Process Distinctions

The debate over the temporal and structural distinctions of memory is part of a larger debate over whether

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(5) For a complete explanation of Festinger's theory of cognitive dissonance, see "The Cognitive Processes - Readings", (ed.) Robert Harper et al. (pp.524-638).

human information processing can be seen as a simple multistore model, or something more complex.

### 3.3.1 The Multi-Store Model

The multi-store model (Atkinson and Shiffrin, 1968) views information processing as an orderly, one-way system with one event prerequisite for the next, typically depicted as a flow diagram (see Figure 3-1, page 93). The analogy of human memory and artificial intelligence held great promise for researchers; in addition, neurological evidence (cited in Kintsch, 1982) revealed "fibres that were arranged in closed, potentially self exciting circuits" (p. 168). This encouraged a view of long-term memory based on structural traces. Frijda (1972) considers LTM to be an information store or memory bank with the following properties : it is a system with a capacity to retain factual information and make truth judgements; it can infer from material in storage; it responds to associative information, without conscious knowledge of the whereabouts of the retrieved information; and finally, it responds to retrieval cues which differ greatly from the original encoded cues. The first three properties shape his conception of the memory store, while the fourth explains access and retrieval procedures (p. 2).

In this information store, each memory element is said to have a charge that responds to a stimulus. As the stimulus gets closer to the required memory element it is said to 'shout' louder; that is, stimulation increases the charge index. In a delightfully evocative image, Selfridge (cited in Fridja, p.11) calls the moment of retrieval "pandemonium".

Central to the storage-and-retrieval, two-process theory of memory are the recognition and recall mechanisms. Kintsch (1970b) describes the basic difference between the two as follows :

". . . recall involves a search process and recognition does not. In recognition . . . the item is sensorily present and it is a simple matter to retrieve its corresponding representation in memory. . . . The problems in recall is very different. Items are not sensorily present to be judged for their newness, but they must be retrieved from memory." (p.337).

In an experimental situation, a recognition test involves presenting a subject with a yes/no choice between previously presented items and new ones. A recall test requires the subject to reproduce items spontaneously or with a cue. Examples of

these tests are to be found in Chapter Six.

### 3.3.2 Levels-of-Processing

In a move away from Atkinson and Shiffrin's model, Tulving and Thomson (1973) stress that item retrieval involves an interaction between original encoding and test conditions.

Lockhart et al. (1976), building on Tulving's (1972) model, suggest that recognition accuracy depends not on appropriate initial coding but on the depth of processing. Depth implies a greater degree of semantic or cognitive analysis.

"Analysis precodes through a series of sensory stages to levels associated with matching or pattern recognition, and finally to semantic-associative stages of stimulus enrichment." (Craik and Lockhart, 1972, p.675).

The 'Levels-of-Processing' model argues, then, that more elaborate processing of the incoming stimuli, at a deeper level, causes better retention in memory. This approach has been supported by a body of empirical evidence (Craik and Tulving, 1975; Tyler and Marslen-Wilson, 1978).

Baddeley (1978), however, questions the value of the levels-of-processing approach. While the theory is useful as a general principle, he does not think it advances the understanding of human memory, since it is based, according to Baddeley, on some false assumptions.<sup>(6)</sup> He suggests that 'depth' as a concept is meaningless. Craik and Lockhart's (1972) idea that ". . . deeper analysis leads to a more persistent trace" (p. 667) implies that deeper cognitive and semantic analysis leads to superior retention. Experimental evidence (Tyler and Marslen-Wilson, 1978) supports this, yet other experimental evidence shows that sometimes apparently superficial aspects of verbal material is retained (Kolers, 1976). In my own study, the youngest subject demonstrated retention over a 4½ year interval of a French word with no semantic basis,<sup>(7)</sup> which leads to the conclusion that other factors may be involved in memory performance.

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(6) The argument is fully set out in Baddeley's article in Psychological Review, Vol. 85, p.139 et seq.

(7) From Miles' language autobiography :

Q. "Can you remember what books you used?"

A. "'Oxford'- they had written on the back and they had big lines on them."

Miles is not referring to a textbook but to an exercise book with the trade name OXFORD printed on the back of it.

### 3.3.3 Encoding : Words and Images

Encoding is the process of establishing memory attributes which fix material in long-term memory.

Wickens (1970) explains the process of encoding a word within a number of different attributes.

"I assume that when a person hears the word 'horse', it is encoded into the broader category of beasts of burden, four-legged creatures, mammals, warm-blooded animals, and finally animals in general. In short I suspect that the encoding process functions in the manner of a good player of Twenty Questions, but in more or less the reverse direction."  
(p.1).

Thus, verbal material may be encoded as imageless thought, in abstract form, or as a picture.

The current interest in encoding processes is largely due to Paivio's work (1971). He proposes that verbal information is processed by a dual coding system, so that imagery occurs as an associative reaction to words. Paivio asserts that the

". . . image-arousing value of words is the most potent variable yet

identified among meaningful material  
in learning and memory tasks" (p.20).

He bases his assertion on evidence that imagery and comprehension are closely related, particularly when concrete referents are involved (p. 19).

Paivio states that a major implication of this dual-coding approach is that in the early stages of language acquisition, (first or second), both linguistic competence and performance may be based initially on imagery. Paivio admits that eventually abstract verbal skills are relatively image-free, as they are context free.

Taylor (1976b) examined imagery in the organization of bilingual memory. He tested whether different degrees of phonetic and visual similarities between French and English words influenced the retention of vocabulary. His results showed that primary associates such as "carrots" tended to evoke common primary associates in the two languages. From this it would appear that the kinds of words likely to be linked by imagery are concrete words and similar words. This was clearly shown by the youngest child in my study who recognized the French word "rouge" through the mediation of the

Afrikaans word "rooi". (8)

While dual-coding theory offers solid explanations for such phenomena, it seems unsurprisingly obvious. Paivio and Begg (1981) state that

"Two codes are better than one, because if one is forgotten, the target memory is retrieved from the other" (p.189).

Perhaps this is oversimplifying the case. Encoding verbal material may well involve more than dual-coding. There are temporal and spatial attributes; other aspects of the encoding process are the modality - visual, auditory or orthographic; possibly kinesthetic information is used. (9)

Observing the acquisition and subsequent retention of French in the three children in my study, it seemed as though they had used a variety of attributes to encode the material in their memories.

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(8) Noted June 15, 1982, after recognition test, Appendix 8 :

Miles : a) "'Contente' sounds like content and I know she isn't because of her tears."

b) "Well 'rouge' probably means 'hot-tempered'. I don't know. I've lost all my French. I can't think. 'Rooi' means 'red' . . . . 'Rouge' . . . . I just can't think."

(9) Molly (in language autobiography) talking about a chanting game she played in a francophone environment : "I can remember the steps we did it to!"

Corsini (1969) tested children from 3½ - 7 years of age to discover whether children use motor acts and visual imagery, rather than verbal language in memory. The older children showed better verbal retention than the younger ones, but Corsini found that when the younger children were allowed to use non-verbal cues to help them remember, they performed as well as the older children. From this, Corsini concludes that younger children cannot manage verbal information as well as older ones, and therefore rely heavily on non-verbal cues in memory tasks.

Brown and Scott (1971) found that children were as adept as adults in recognition tasks involving pictorial materials, supporting the notion that the capacity of the child and adult memory is the same but they favour different encoding cues.

Of all the attributes mentioned, the verbal/imagery combination may well be the most effective means of retaining information. Whatever the case, the encoding process is usually not consciously decided upon by the individual.

Wingfield and Byrnes (1981) dismiss the role of introspective effort : they conclude that

"The process of constructing an image does not seem to be available to conscious awareness" (p.79).

Conscious imagery formation as a mnemonic device (the 'peg-word' method) is a different process, and will not be elaborated on here. My focus in this section has been on how words are encoded. I propose to look now at the verbal system of words in larger units and how they are processed in memory.

#### 3.3.4 Speech Processing Memory

Melvin (1976) explains the complex process of how meaning is represented in memory thus :

"When any item longer than a word (a sentence or a phrase) is encoded, the structural rules of the language are used to extract the underlying meaning" (p.42).

She cites research which indicates that adults encode sentences in terms of surface grammatical structures.

Cook (1977) agrees that the speech processing memory of adults will be dependent on syntax whichever language he speaks. This conclusion is shared

by Johnson (1968), who says that sentences can be coded in terms of their grammatical structure and that at recall they are reconstructed from this coding :

"It may be said that the facilitating effect results from the fact that grammar provides subjects with a reliable recoding scheme." (p.437).

He allows, however, that the facilitating effect of grammar may be quite small.

The use of surface grammatical structures in encoding by young children is scarcely covered; on the whole, the proposition that syntactic encoding is the least successful way of encoding into long-term memory was borne out by the results of my tests. Cook (1977) allows that

". . . linguists who have looked at this area have mostly felt that the outstanding characteristic of speech processing memory is its limited capacity for syntax" (p.3).

It appears that while the encoding of a sentence may depend on an ability to deal with grammatical structure, syntactic complexity will lead to a loss of comprehension.

In experimental circumstances, the age of the subjects and the nature of the task dictates to a considerable degree how sentences are encoded. The syntactic barrier in processing speech can be overcome in early foreign language learning by such strategies as rote rehearsal. All three subjects in my study learned their first reading book in French<sup>(10)</sup> off by heart, which did not involve processing surface grammatical structures. In a similar way, T.H. White (1978) recalls the typical classroom emphasis on verbatim learning of a foreign language :

"Memory was the foundation of learning at the Hebrew School, and the memory cut grooves on young minds that even decades cannot erase" (p.39).

The ability to produce long strings of a foreign language in the early stages of learning it would enhance the possibility of later recall, because of the learner's sense of achievement. Affective factors would be encoded with other attributes into memory. On the other hand, McDonough (1981) correctly notes that learning verbatim chunks of a language

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(10) Valérie et Daniel, Houblain, L. et Vincent, R., Fernand Nathan, Paris, 1964.

" . . is rather irrelevant to the complex task of gradually building up a representation in semantic memory of the new language code, in a form which is flexible and usable in novel ways, in novel contexts" (p.73).

Cermak (1978) makes a similar point, that the more features of the language system a person can detect and encode, such as phonetic and syntactic features, the more likely he is to retrieve it. Hence, should a person not encode semantic or syntactic features, the probability would be more fragile retention of the language.

#### 3.4 Content Distinctions

In daily memory tasks, we seem to remember the content or gist of prior experience, rather than a verbatim form. Yet my research showed that rote memorized strings were retained in very long-term memory. The question arises - are sentences retained verbatim, or are they reduced, or are they interpreted? The answer seems to include all of the above. Neisser (1982), who says that we recall substance rather than form, acknowledges that on occasion we ". . . depend heavily on exact and literal recall" (p.16), and that in other societies, verbatim memory plays an important role.

### 3.4.1 Deep versus Surface Store

Verbatim memory may be loosely equated with Chomsky's (1964) surface structure theory, in that it remains phonetically, syntactically and semantically intact. Such strings, discussed in Chapter Two as formulae, are generally about a clause in length (Dodd and White, 1980).<sup>(11)</sup> Songs and poems are other examples of long-term verbatim memory, where the text itself and not just the meaning is important.

Interpreted memory corresponds with Chomsky's deep structure idea. Information is held in long-term memory in a different form from the original. (See discussion on the Reconstructive Memory paradigm at the beginning of the chapter.) Information is changed in various ways; either as the gist of a sentence, the Chomskyian 'kernel'; or in a different form, having passed through a semantic and subjective filter; or in the form of visual imagery (Paivio, 1981).

The question of whether verbal information is held in some form of linguistic deep structure was addressed by Mehler (1963). His findings appear to

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(11) See Vihman (1980) for a recent discussion on verbatim language.

support the hypothesis of transformative generative grammar in two ways : first, that active sentences were stored more readily than other types, and second, that when errors in retrieval were made, they tended to be in a simplified form as though transformational cues were lost. This coincides with Miller's (1962) findings that people comprehend sentences by 'transforming' the surface structure back to its kernel, so that both aspects of a sentence may be stored in memory.

Danks and Glucksberg (1975) reject the usefulness of such experiments : the difficulty of remembering sentences, they say, may be caused by transformational complexity or simply through the difficulty of storing long strings. They point out that individual differences and the wide choice of possible deep structures complicate the deep/surface theory of memory for sentences.

#### 3.4.2 The Gist of Sentences and Texts

A second concept of what is stored in memory involves the 'gist' of sentences. Losen (1981) tested what words subjects found important, concluding that the subject of the sentence was the most important item and was remembered most frequently. Fewer verbs were recalled than either

subjects or objects. The explanation for this could be that verbs are subject to more complex morphemic changes than nouns. Certainly the children in my study retain French verbs in an unstable form<sup>(12)</sup> in very long-term memory.

In a study suggesting that memory for the meaning of a sentence is distinct from memory for the linguistic expression itself, Sachs (1967) demonstrated that subjects stored information about the meaning of a sentence, and very little else, a mere 27 seconds after hearing it. The results of her tests were clear; when a test sentence was included in the middle of a paragraph, her subjects' memory for syntactic changes was poor. At the same time, their memory for changes in meaning was still sharp.

Obviously, processing considerations are more complex when dealing with texts, rather than with individual words. Kintsch (1975) describes the processing that occurs in reading a story (see Figure 3-2, overleaf). It involves six levels of processing, resulting in different kinds of memory trace. Visual cues are the first to be processed

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(12) Examples from Kate's recall test include: "vous avez doire" for "vous devez"; "il ne serat pas" for "il ne savait pas".

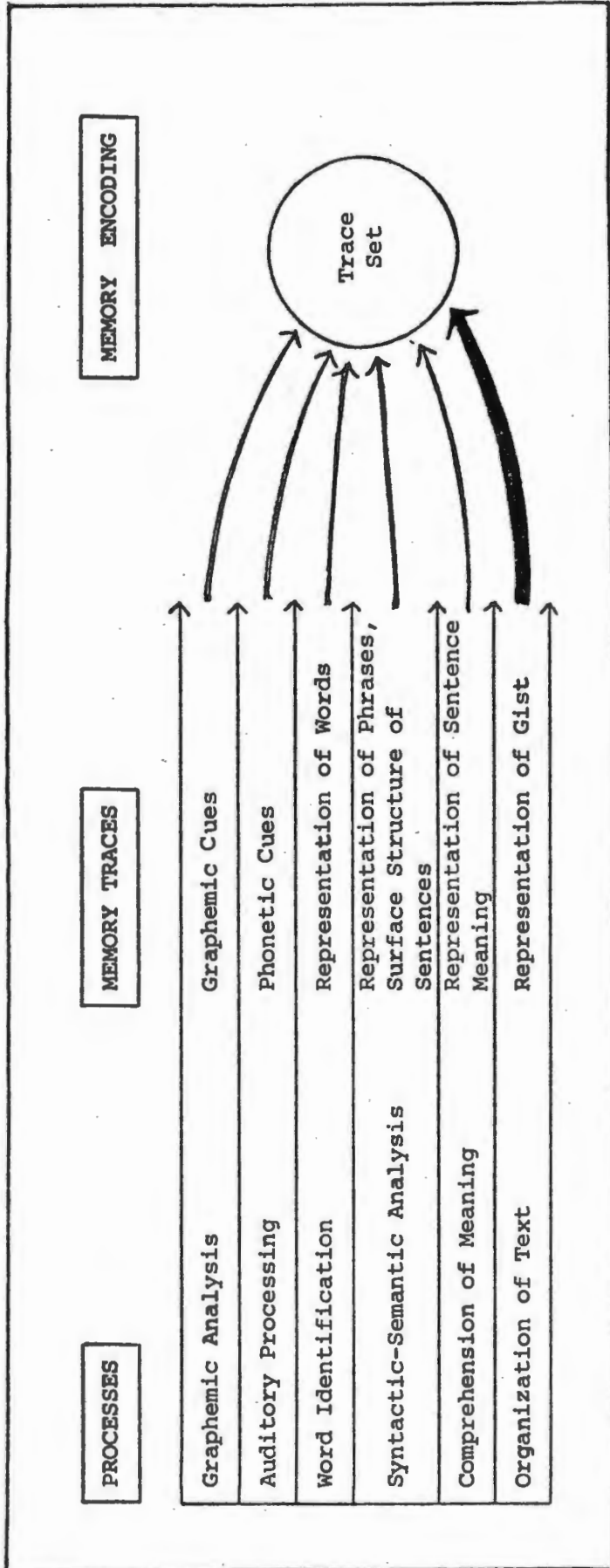


FIGURE 3-2

Stages of Processing Verbal Material; the Memory Traces Arising from These Processes, and Their Selection for Encoding in Memory, Under Standard Reading Conditions (Kintsch, 1975)

(The thickness of the arrows = the likelihood of encoding in memory for long-term retention.)

according to the chart, while the gist of the text comes last. Of course, actual processing does not follow on in such clearcut stages. The processes are highly interactive (Kintsch, 1982).

Bartlett's (1932) theory of reconstruction holds that we relate sentences to what we know about the real world, constructing a whole happening and not just a single event. This seems a plausible explanation for the combination of verbatim and interpreted sentences found in my subjects' long-term memory. As I have said, memory for sentences in a text can be different from the recall of other verbal material. Rubin (1977), testing the very long-term memory in college students and school children for a deliberately learned passage as opposed to a normal reading passage, found that meaning, in the form of the gist of the sentence, was not as important in memory as the associative chaining of surface structure units. Rubin suggests that this may be because the sentences were learned with an emphasis on correct wording, at a stage when there was not much understanding of what they meant.

Verbatim memory for sentences deliberately processed in this way is one aspect of the 'first learned, last-forgotten' principle observed in memory for a second language (Cohen, 1975a). Such memory for verbal material is not meant to account for the

ability for language comprehension.

I am in general agreement with Goetz et al. (1981) in their conclusion that ". . . language comprehension is a constructive process", and what people retain in memory ". . . will not always be veridical representations of what they see and hear" (p. 374).

### 3.4.3 Episodic and Semantic Memory

So far we have looked at words, sentences and passages from stories, generally observed in experimental situations. An important distinction to be made before concluding this discussion of memory is that between semantic and episodic memory. Tulving (1972) defines memory about language as 'semantic' memory : this compares approximately with Chomsky's competence model. Semantic is not synonymous with information about lexical items : in its broader use, semantic memory refers to

". . . the memory necessary for the use of language. It is a mental thesaurus, organized knowledge a person possesses about words and other verbal symbols, their meaning and referents, about relations among them, about rules,

formulas and algorithms of these symbols' concept and relations." (p.383).

Tulving contrasts this with 'episodic memory', comparable to Chomsky's performance model, which :

". . . receives and stores information about temporally-dated episodes and events, and temporal-spatial relations among these events. A perceptual event can be stored in the episodic system solely in terms of its perceptible properties or attributes, and it is always stored in terms of its autobiographical reference to the already existing contents of the episodic memory store." (p.385).

Episodic memory for language would therefore be closely related to subjective experience of people, places and happenings; semantic memory in contrast, stores language in terms of a cognitive base, using knowledge of the phonemic, grammatical and semantic regularities of the language.

This does not mean that episodic memory should be equated with natural situations, or semantic memory with formal learning. Most of the experimental work I have mentioned involves episodic memory : even list-learning occurs in the personal framework

of the learner. Tulving (1972) says :

"If it is true that past research in human learning and memory has been concerned primarily with episodic memory, and if it is true that classroom learning has little to do with students' remembering personally experienced events, then it is not surprising that empirical facts and theoretical ideas originating in the verbal learning and human memory laboratories have little bearing on theory and practice of acquisition of knowledge." (p.401).

Tulving's rhetorical question does not ring wholly true. The functional distinction between semantic and episodic memory appears to be blurred. Experiments in the "human memory laboratories" involve both types of memory : the two seem so interdependent that it is difficult to separate them out. With this in mind, Craik and Tulving (1975) conducted ten experiments to explore how memory could be enhanced by integrating semantic and episodic tasks. They found that "memory performance was drastically affected by these activities" (p. 276). That is, memory performance was enhanced to the extent that the context formed an integrated unit with the words presented.

This seems to contradict the view that in order to enhance retention of learned items in a second language, which is the particular interest of this study, semantic memory should be used more consciously to divorce the knowledge from its original context, in order to make it more accessible for any purpose. McDonough (1981) is of the opinion that

". . . any learning technique or memory coding system must allow the language information to lose the episodic characteristics it has at first, and be absorbed into the general system of semantic memory." (p.72).

This may be applied more easily to adult than child learners. Petrey (1977), in a series of word association tests, found that adult responses were grouped primarily from semantic memory of the word's internal context, whereas children's responses displayed mainly episodic memories of external context. The implication is that episodic memory is input without conscious consideration for future recall. Teaching children to encode more conscious recall strategies is a fruitful area of further research, which I will discuss at length in the next chapter. Pressley et al. (1982) have already contributed some useful research on the subject.

While the need for an episodic/semantic distinction has been dismissed by recent researchers (Anderson and Ross, 1980), it seems to be a facilitating concept for understanding how the human brain stores information.

As a last word, having looked at the theoretical base of storage mechanisms in memory, I will quote a more down to earth basis for remembering :

"The mind remembers what the mind does, not what the world does. That is, experience is the mind at work, not the active world impinging on a passive organism." (13)

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(13) Quote from James J. Jenkins in G. Miller, 1973, p.170.

CHAPTER FOUR4. ASPECTS OF FORGETTING

We have all experienced forgetting verbal information, ranging from a particular word or name used minutes before, to a language which we once used in daily life. The last chapter discussed how language is processed and stored; this chapter is concerned with the theoretical and practical aspects of forgetting verbal material. It will deal with such questions as why we forget, and whether information is unlearned, unrecalled or completely forgotten.

Neisser (1982) calls the notion of uncovering the cause of forgetting "a strange one, like trying to establish the cause of crime" (p. 9). He ascribes forgetting to "the complexly intertwined history of a particular individual who encounters a particular situation" (p. 9). How, then, can one hope to understand the phenomenon? While Neisser is correct in emphasizing the individual and particular nature of forgetting, there must be some global properties which bear examination. In an effort to find these, I propose to give a brief overview of some different explanations of the phenomenon of forgetting, starting with general schools of thought on the subject.

#### 4.1 Retention or Loss? Why We Forget

There are several comprehensive theoretical systems which explain why we cannot remember something we once knew. They can be summed up under two general positions : lost permanently or lost temporarily. Miller's (1963) 'Junk Box' analogy holds that either the searched-for item is not in the junk box, or it is lost in the junk box amongst a lot of other objects. I will examine the first aspect of this analogy, the "no longer in the junk box" notion, which tries to prove that information that was once in the brain can for various reasons, cease to be there any more.

##### 4.1.1 Displacement Theory

This one popular view of forgetting is expressed through the fictitious character Sherlock Holmes in A Study in Scarlet (Doyle, 1929 & 1981).

"I consider that a man's brain originally is like a little empty attic, and you have to stock it with such furniture as you choose . . . It is a mistake to think that that little room has elastic walls and can distend to any extent. Depend upon it, there comes a time when for every new addition of knowledge, you forget something you know before. It is of the highest importance, therefore, not to have useless facts elbowing

out the useful ones." (p.21).

According to this idea, memory has a limited storage capacity. The belief that newly acquired knowledge "elbows out" older knowledge is the basis of displacement theory. In some ways, displacement theory makes sense, since it would be easy to attribute forgetting some large body of old learning such as a second language, to learning a new language system. It is impossible to prove such an idea scientifically but were no other theories available, it would be reasonable to believe in displacement. There is, however, no biological base for such a theory, since the brain does not appear to be limited in its capacity for learning.

Time and interest may be barriers, but not brain space. Besides which, the common experience of being able to retrieve a language when back in the original learning environment makes the Sherlockian explanation of displacement of little use.

A similar theory which has been in circulation for centuries, holds that unused languages are forgotten through disuse; such theories are now embodied in :

#### 4.1.2 Trace Decay Theory

"Left to itself, every mental content gradually loses its capacity for being revived", said Ebbinghaus (1885, p. 4). This theme, pervading the work of the 'father' of forgetting theory, is based on the ancient wax-impression idea of memory. Rather than abruptly "elbowing out" information, as claimed by the believers in displacement, trace decay theory allows that material is forgotten more gradually; first, by a blurring of details, later by a fading into complete oblivion.

I will briefly consider Ebbinghaus' serial learning method, which gave rise to his celebrated 'curve of forgetting' (Figure 4-1, overleaf). This shows the rate nonsense syllables were forgotten over a 31-day period. According to Ebbinghaus, the curve of forgetting begins almost immediately after learning. He discovered that in the first day after learning a list, he forgot 75% to 80% of what he had learned, after which the curve of forgetting flattened out into a very gradual loss. Similar findings have been made by many psycholinguistic researchers (e.g. Jenkins, 1973) concerning the forgetting of serial lists, so that the conclusion seems obvious that unconnected facts decay steadily over time.

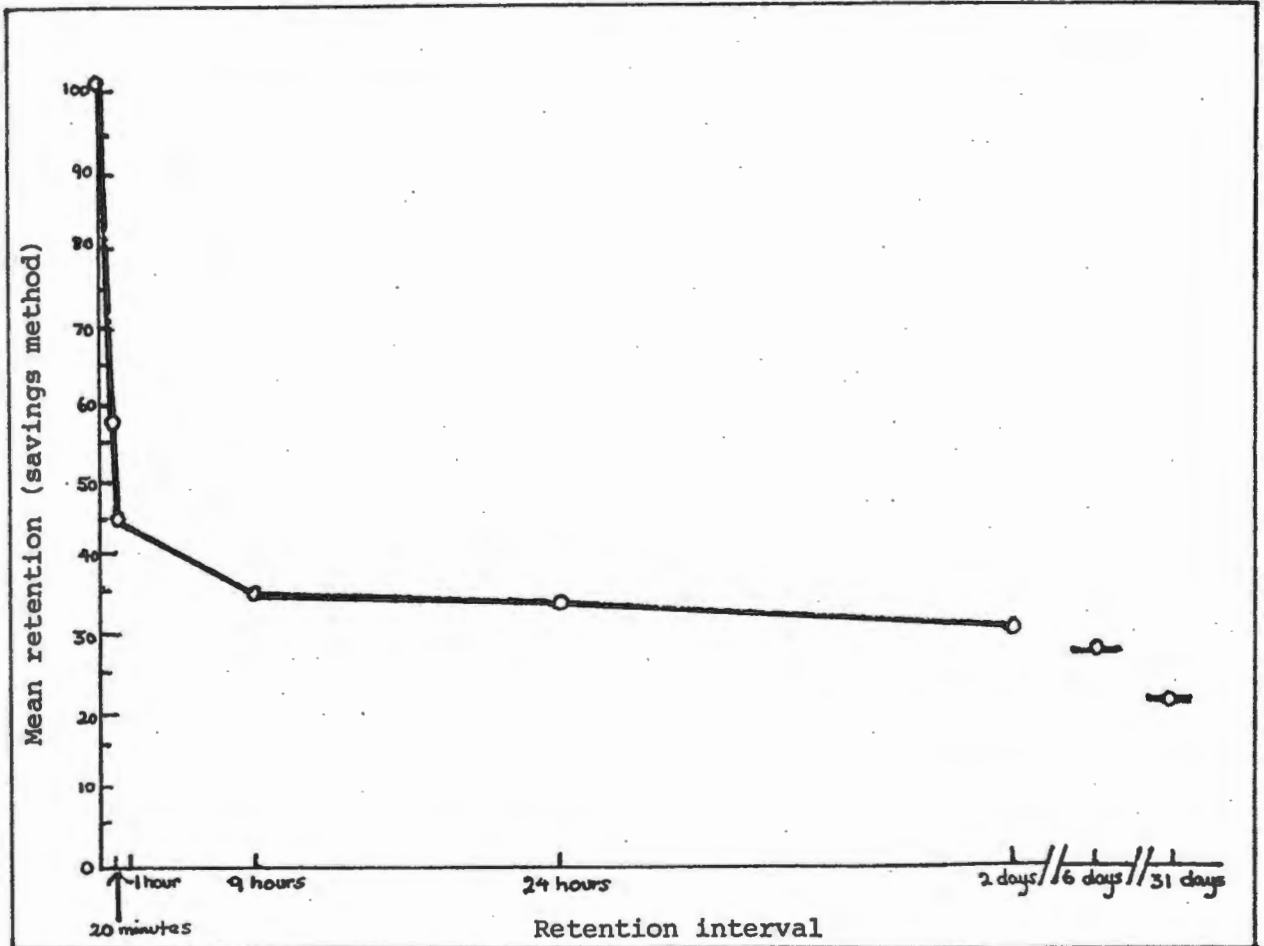


FIGURE 4-1

Rate of forgetting of lists of nonsense syllables over a 31-day period as obtained by Ebbinghaus (1885). Retention score determined by the savings method, which bases degree of retention on the number of trials required to relearn the lists after various intervals.

(cited in Wingfield and Byrnes, 1981)

While I have previously noted the importance of Ebbinghaus' contribution to a more systematic approach to memory, the curve of forgetting does not offer much help in predicting natural forgetting (Young, 1968). Just as Freud has been criticized for generalizing studies of the Viennese bourgeoisie into universal psychological principles, so Ebbinghaus' findings are too specific and too restrictive to be of general application. Such great losses may occur in word-list retention, but not in meaningful material, when elaborative and associative details can lend significance to the original learning. Thus, the curve of forgetting can only be related in the most peripheral way to forgetting a second language, since Ebbinghaus' graphic representation is specific to his particular experiment only. Another barrier to applying his theory is that it contains the unwritten assumption that what is retained in memory is basically a rote-learned copy of the environment, passively received by the individual.

Trace decay theory fits within a Behaviouristic framework in the form of stimulus-response learning and extinction. The Behaviourists would argue that periodic restimulation of verbal material would reactivate the trace and keep it in memory, but with disuse, the trace would fade away and be lost, the

same way that extinction occurs in conditioned laboratory animals.

Underwood (1948) proposed that in verbal learning, associations could be formed, but if these were not maintained, the tendency to produce the response would systematically decrease. Should this be the case, Underwood anticipated occasional instances of spontaneous recovery, as in experiments on habituation with animals. In some experiments he reported finding just that. Wingfield (1979), however, doubts the reliability of such experiments. Trace decay, while it is intuitively appealing, is hard to prove. As ethologists demonstrated that animals behave differently in nature than in a laboratory, so humans behave differently in natural language situations than in paired-associate learning. Habit formation connotes an involuntary unconscious process. If habits are not reinforced, for example, should Molly and Kate no longer play the chant game "Elastique", it would follow that they would no longer remember the language accompanying that activity. <sup>(1)</sup>

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(1) See Molly's language autobiography for a description of the game "Elastique" and the chants that accompanied it.

This does not prove to be so. There is obviously a difference in the kind of habitual responses which linger on in the memory, and the kind of highly cognitive learning which would encompass such tasks as spontaneous conversation and using language in problem solving. The trace decay model of forgetting tends to ignore these inconsistencies in human behaviour.

A challenge to trace decay theories was offered by Jenkins and Dallenback in 1924 (cited in Wingfield, 1979). These researchers conducted a series of sleep studies to see whether forgetting occurred at the same rate during sleep as it did when the subjects were awake. They surmised that it did not, giving rise to the conclusion that

"Forgetting is not so much a matter of decay, of old impressions and associations, as it is a matter of the interference, inhibition or obliteration by the new" (p.612)  
(see Figure 4-2, overleaf).

In spite of the fact that the idea of formation and extinction of associative bonds in verbal learning is almost extinct itself as a theoretical model, the practical application of it still exists in second language classrooms in the form of drills and testing of word-lists. Natural language forgetting

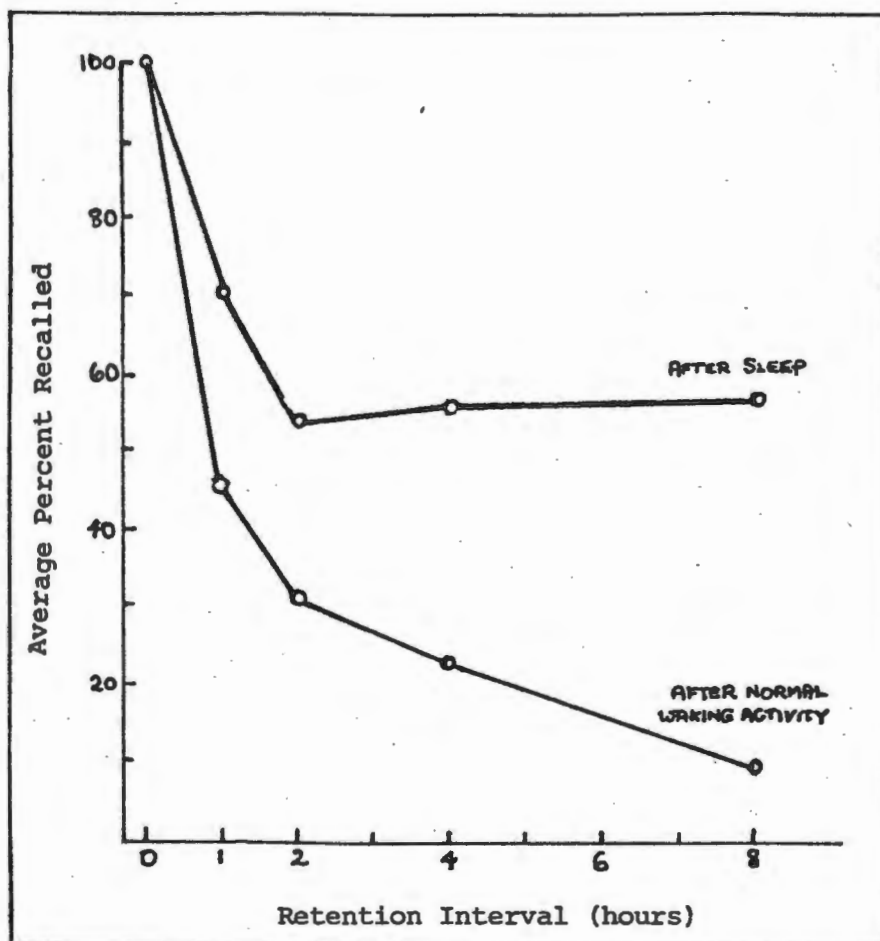


FIGURE 4-2

Average Retention Curves of two subjects over an eight-hour period, occupied either by sleep or by normal waking activity.

From: J.G. Jenkins & K.M. Dallenbach,  
"Oblivescence during sleep and  
waking" in American Journal of  
Psychology, 1924. 35: (605-612).  
(Source: Wingfield: "Human  
Memory", 1979.)

takes a different course, since it appears to play an important part in learning, by preventing the learner from becoming overloaded with details, as I will show later. Associationism, in the form of establishing a network of associative relationships, is not to be confused with the connections embodied in the stimulus-response mould (Anderson, 1976).

Haugen (1956) extends the association/disuse model to a natural language loss situation :

"We are interested in the reinforcement of learning that causes a person to develop his proficiency by continual use. Here, the practical usefulness in communication will be a primary factor . . . Third generation Norwegians very frequently pointed to the presence of a non-English speaking grandparent in the household as an important factor in promoting the learning of that language by the child. The passing of the grandparents often led to the disuse of the immigrant language." (p.74).

Is this disuse extinction, or merely exclusion from the conscious mind? Is this conversational Norwegian not "in the junk box", returning to Miller's analogy, or is it merely misplaced? An alternative to the theory of language being displaced or worn away is incorporated in :

#### 4.1.3 Interference Theory

Since theories of forgetting tend to be somewhat remote from what people remember and forget in real life, the subject is rife with metaphor. McGeoch (1942) compares interference with the rust that forms on an iron girder : the rust changes the girder by an active process of oxidation, rather than by a passive one of deterioration. He thus rejects time-related decay as the explanation for forgetting, proposing interference - what occurs between learning and recall - as the cause.

According to the theory, interference is a conflict of habits, or competition between responses to identical or similar stimuli (Postman, 1976). As a theory, interference stands in direct opposition to displacement and trace decay (McGeoch, 1932).

Initially, the main focus of interest was retro-active (or postactive) interference which occurred between learning and recall. It later became obvious that when trying to identify interference coming from outside the experimental situation, earlier learning, or proactive interference, could also cause forgetting.

The 'two-factor' theory, proposed by Melton and Irwin (1940), identified what actually caused active

interference. The first factor involving unlearning of already learned responses because of competition from new learning; the second involved competition between what was already learned and the newly learned responses. The first factor, unlearning, was studied by Barnes and Underwood (1959) in a series of verbal learning experiments using word-lists. They found that the first list associations became obscured during second list learning, showing a genuine unlearning effect rather than simple forgetting (Kintsch, 1982). The second factor of competition from what had been learned before was examined by Underwood (1957), who showed that such proactive interference also caused forgetting. He based his conclusions on evidence that the more lists his subjects learned previously, the poorer was their recall of later learned lists.

Jenkins (1973) demonstrated this effect by conducting word-list learning experiments over some time. While his subjects took a long time to learn the first list, they recalled it well. As they became more familiar with the task, or 'better learners' (learning lists in half the original time), they recalled less and less each day. Thus, as they became more adept at learning, they became less adept at remembering. Jenkins concluded that they

"overpowered" the task at first, recording contextual details to aid the initial learning, and using such strategies as trying to relate syllables on the list to each other to aid remembering. (2)

The basic principle of proactive interference is that initially, when learning new verbal responses, they must be superimposed over old, strong linguistic habits (Keppel, 1968) - hence the use of strategies and cues. Eventually these are unlearned, so that interference with subsequent list learning occurs not only from experience prior to the experimental situation, but also from the material learned during the experiment. The Underwood/Postman (1960) theory assumes that interference is the main cause of forgetting, rather than trace decay; the latter relies on lack of conditioning to explain forgetting, while the former is based on counter-conditioning.

Talland (1971) urges caution in generalizing from these highly artificial laboratory situations. He

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(2) Molly, in her language autobiography, remembers the name of a house mentioned in her first French book - "Ker-lou-rou". The name has no meaning for her; she remembers it through stressing the syllables.

is right in pointing out that it is hard to relate controlled findings to authentic language situations. In an effort to do so, one might say that for the children in my study, their first language (English) provided proactive interference in learning a second language (French). The dominance of English habits was eventually 'unlearned' through the strenuous efforts to overpower the basic forms of French, yet over the retention interval of 2½ years, after leaving a French-speaking environment, English recovered to interfere with recall of French.

Retroactive interference is less well defined. It could refer either to later learned French, after the initial onslaught, when learning had become more mechanical or unconscious, or it could equally refer to all the new verbal information acquired by the children since leaving the French environment, much of which they did not possess before learning French. Bugelski (1979) attempts to clarify interference thus :

"If we forget, it is because the stimulus for some response is now actively inciting a competing response which can even be one of 'I don't remember'." (p.322).

From this it is apparent that forgetting is not complete elimination of information by a competing response, but could involve retention on an unconscious level. Haugen (1956) cites that

"While bilingualism presumably never entirely vanishes from the unconscious, it can be extinguished for practical purposes by disuse of one language . . ." (p.74).

Although time itself does not cause forgetting, Wingfield and Byrnes (1981) say that

"The longer the retention interval between learning and testing, the more likely it will be for the person to encounter potentially interfering events". (p.36).

Very long-term memory, according to interference theory, is difficult to test because of the wide variety of experiences which individuals go through in between learning and testing. According to this theory, the only way to stop the process of forgetting is to suspend animation - to stop experience.

#### 4.1.4 Retrieval Failure

Bugelski (1979) states : "You did not forget, you

just don't remember" (p. 323). In other words, the information is still in the junk box, hidden amongst other items in storage. This explanation for forgetting coincides with the information-processing theory of retrieval failure. Human beings are seen as functioning with enormously flexible but fallible storage and retrieval capacities (Hart, 1965). If human memory were infallible, it would instantly retrieve verbal information from storage, and failure to do so would mean that the information was not in storage. The equation between human and artificial intelligence is obvious and straightforward, yet clearly we do not operate like this.

Retroactive interference can disrupt retrieval plans so that retrieval cues encoded at the time of learning do not elicit the correct response. There is no direct pathway between storage and recall in the human memory system as there is in a computer. Recent work by cognitive psycholinguists<sup>(3)</sup> indicates that

". . . a lot of these so-called bad effects - confusion and forgetting, for

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(3) Discussion of the work of Roger Schank, Robert Abelson, and Gordon Bower, in Psychology Today, April 1983, pp.28-36.

example - are an important part of learning. Forgetting and confusion allow you to notice generalizations across domains."

Schank (1983) adds that computers are currently being programmed ". . . to blur memories and forget things" (p. 34) in an effort to modify infallible storage systems.

The problem with testing for retrieval failure, as happens with almost all other tests on verbal learning, is that the testing material is regular and structured, while real memories tend to be haphazard, amorphous affairs.

Tulving (1972)<sup>(4)</sup> introduced the distinction between availability and accessibility in retrieval attempts. He makes the point that memory traces may be available, but inaccessible. Thus recall may not be a simple process in experimental settings, for it may depend on what kinds of tests, in what kind of circumstances, are used.

Recognition tests help give access to stored verbal

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(4) Tulving's (1981) experiments on retrieval cues are explained in detail in Kintsch, Chapter 5, p. 227 et seq.

information more than recall tests, since the presentation of items can be used to focus the search for other items. J. Brown (1976) explains that

"In recall, access to the unit code for the target word is a prerequisite for success, whether or not this code is tagged." (p.15).

The unit code corresponds to the visual and auditory form of a word. Other codes may be chunked by close association, such as "mother/daughter", or may be category names.

Tulving and Pearlstone (1966), using such a unit code, set out to prove that failures of memory are primarily failures of retrieval. Their subjects learned word-lists which belonged to twelve different categories. Without the names of the categories, their subjects made partial recall of the word-lists; some whole categories were forgotten. When given the prompt of the category names, many more words became available. Bugelski (1979) conducted an interesting test to find out whether by reduplicating the stimuli of the time of encoding, he could elicit a similar response at retrieval. His subjects serial-learned 20 nonsense syllables in a laboratory setting. Eight months later, the

subjects were asked to recall these syllables. After they had vigorously denied their ability to remember anything, the subjects were persuaded by Bugelski to mentally recreate the temporal and situational attributes of the original learning. Some syllables were recalled. The students were then returned to their laboratory cubicles where the original learning occurred. After half an hour, one student had recalled 18 of the original 20 syllables.

Interesting as these results may be, it is of little practical use to be able to retrieve such inaccessible information in a laboratory. In real life, the recreation of the original learning context is well-nigh impossible. Bugelski himself admits

" . . . that much that is learned becomes unavailable, even with heroic efforts at improving the accessibility"  
(p.326).

Yet there are occasions when the context of learning is restored. Talland (1971) cites how

" . . . people who had mastered a first language before acquiring another they have been using latterly, may not recover their fluency in

that first tongue until they hear  
it spoken around them." (p.73).

It is apparent that the importance of the original context of learning in retrieval relates to the distinction between episodic and semantic memory mentioned in Chapter Three. If episodic memory is considered to be the 'warehouse' of experience-events, along with the language surrounding these, then attempts to recreate the original context of language learning is impractical. Since semantic memory involves abstraction from experience, the language is event-free and easier to retrieve in principle. In other words, forgetting is likely to be more general from episodic than semantic memory - but is it?

#### 4.1.5 Motivated Forgetting

"The things we most quickly forget  
are those we are fed up of [sic]  
talking about . . . " (La  
Rochefoucauld, 1665; 1959, p.148, No.595)

The intent to remember, the effort to keep information in conscious memory, is invariably a help in avoiding forgetting. This may seem too obvious to be worth mentioning. It is, however, an extenuating factor in the forgetting of a second language by such highly mobile children as Molly

Kate and Miles. Forgetting can become part of the adjustment process of moving from one linguistic milieu to another (Beardsmore, 1979).

Of course, individuals differ in this respect, as do the children in my study. Bearing in mind the less planful way younger children learn in general (discussed at the end of this chapter), the youngest, Miles, showed a practical attitude towards forgetting French : "When I need it, I'll learn it again".<sup>(5)</sup> It is clear that he is not repressing French because of its negative emotional content, but rather that it hindered him from integrating into the new social and linguistic milieu. (See Figure 4-3 (overleaf) for the children's stated intent to remember and how it corresponds with their actual remembering of French.)

The romantic view is that second language learning is like love : it is better to have known it and lost it than never to have had it at all. This may not always be true. The presumed benefits of having learned a second language, such as acquiring a second culture by means of that language, depend

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(5) From Miles' language autobiography.

	Intent to Remember	Implied Intent to Forget
KATE	<p>(1) (1 month after arriving in South Africa) "There was a girl who spoke a tiny bit of French. I tried to have a conversation with that girl."</p> <p>(2) "Molly and I, when we first got to Pretoria . . . could sit together in the classroom and speak French . . . →"</p> <p>(3) "I wanted to remember it . . . →"</p> <p>(4) "Sometimes I used to pick up the odd 'Gout de Lire' and page through it . . . →"</p>	<p>(1) "What I found harder was . . . trying to do Maths <u>not</u> in French." (in South Africa).</p> <p>(2) . . . But we only did that about four times 'cos it was a waste of break . . . 'cos Justine was totally uninterested in it. We didn't really concentrate on it."</p> <p>(3) . . . but I couldn't be bothered to do anything about it."</p> <p>(4) . . . but not really, no." (Re: trying to stop forgetting)</p>
MOLLY	<p>(1) (On French numbers) : "I learned the numbers of maths pretty quickly . . . I don't think I'll forget it either."</p> <p>(2) "Sometimes I used to think about French, try and remember some of it . . . "</p> <p>(3) "Now whenever I want to say anything to Kate, if I'm on a French craze, I say . . . "</p> <p>(4) "The other day I tried to do my times-table in French in my head."</p> <p>(5) "I tried to translate something from English into French . . . I did it."</p>	
MILES		<p>(1) "I didn't mind forgetting French. I don't mind if I've lost French."</p> <p>(2) "When I first came to South Africa, I mixed up the French sounds with the Afrikaans sounds."</p> <p>(3) (On arrival of French speaker in his class) : "I had to translate for her . . . Really, I was teased a lot over that."</p>

FIGURE 4-3

A Comparison of the Three Children's Intent to Remember (or to Forget) French, as Stated by Them in Their Language Autobiographies

on the willingness of the individual to learn. In a situation of forced compliance, the love analogy may be turned into one of forced marriage, so that the second language becomes a source of resentment rather than a liberating experience.

In South Africa, forgetting a school language like Afrikaans may be related to demotivating attitudinal factors rather than to passive, time-related factors (see Chapter Two, 2.4.1). Nida (1971) cites the case of forgetting a language even with constant exposure :

"When a person ceases to listen actively to a foreign language, he usually begins a relatively rapid decline in his correct handling of the grammar." (p.64).

Such a decline can involve all skills in the language. It can be caused by a shift of interests or motives, such as a decrease in instrumental orientation, or a feeling that a plateau has been reached. For whatever reason, motivated forgetting can cause a rapid decline in language competence, as an individual withdraws from the second language.

One last point on repressing a language for psychological reasons is made by Wingfield (1979);

that knowledge of one's currently used language is rarely lost, even in amnesiac states, when whole areas of memory may be actively blocked. Other forgetting mechanisms I have discussed, such as those of trace decay and interference, seem to be largely unconscious. Motivated forgetting, however, appears to actively, consciously work at unlearning.

A completely different aspect of motivated forgetting might be called elective forgetting (Le Ny, 1980). This is more or less part of the Gestaltist construct of the memory trace changing over time because the human mind actively restructures information. Thus, forgetting occurs because the individual selects some details and disregards others which are considered less relevant. Le Ny proposes that a subject who recalls the content of a sentence or a text will reconstitute new sentences in certain predictable ways. The kinds of lexico-semantic changes noted in Le Ny's experiments are : omission of redundant information; loss of specificity; specification and overspecification; and lastly, introduction of erroneous meaning (p. 77). Such forgetting and reconstruction is apparent in the recall tests of the twin subjects in my study. I will discuss these findings, taking into account Le Ny's proposition, in Chapter Six.

#### 4.1.6 A Comprehensive Theory of Forgetting

So far as the cause of forgetting is concerned, no single factor can be held responsible, although several mechanisms seem to contribute to the process. It must be restated that it is not the same looking at isolated verbal items as it is a whole language.

The kind of tests employed greatly affects the amount of material retrieved, as does whether we are looking for verbatim or meaningful verbal information. Howe (1970) says

"Whether somebody remembers a joke or a rumour will depend as much upon factors directly associated with his individual frame of reference as upon factors directly associated with the structure of the memory system."  
(p.77).

Formal forgetting systems may work in tightly controlled experiments, but proving theories in this way does not answer all the questions raised by the natural loss of a second language. As a general characteristic, forgetting involves what to us is unimportant. Remembering involves what is different, as well as what is important.

#### 4.2 Retrieval Strategies : How We Avoid Forgetting

James (1890) summarizes James Mills' concept of the retrieval process :

"In short, we make search in our memory for a forgotten idea, just as we rummage our house for a lost object. In both cases, we visit what seems to us the probable neighbourhood of that which we miss. We turn over the things under which, or within which, or alongside of which, it may possibly be." (p.654).

##### 4.2.1 'Feeling of Knowing' and 'Tip of the Tongue'

Two states are often encountered during this search. The first, called the 'feeling of knowing' (FOK) (Hart, 1965), tells us whether items are available to conscious recall. We may know that they are buried very deep in memory<sup>(6)</sup> and that it is pointless to search further, or we may be seized by the second state, the 'tip of the tongue' (TOT) phenomenon (Brown and McNeill, 1966) during which we actively search for information. TOT is a more

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(6) Miles, in his language autobiography, speaks of forgetting French : "It just died. I know it's back there. It's buried deep in the ground."

intense experience than FOK. FOK is like a cloud in the mind; TOT is like trying to make the cloud rain. Kintsch (1982) underlines the importance of the TOT finding since it implies that words are not retrieved as units, but as a number of loosely connected elements, which Kintsch defines as ". . . general meaning, sound pattern, first letter, etc. . . ." (p. 285).

According to Brown (1976), a recognition test is most likely to reach stored verbal information since the visual and auditory forms of a given word can be used as a focus to find other forms. Recall, in contrast, involves a more rigorous, active process of retrieval, in which an image or verbal item must be brought to consciousness without given forms. Since this process involves retrieval strategies, which rely on the form of the to-be-remembered word, Brown emphasizes the strong relationship between word retrievability and discriminatability.

Underwood (1972) disagrees that discriminative attributes are what make a word easy to retrieve; he holds that situational frequency is usually the main factor in discrimination, in other words, how often it occurs.

#### 4.2.2 Rehearsal : Two Functions

An interesting aspect of retrieval is the role played by rehearsal. As we all know, or think we know, rehearsal is a central mechanism for helping us to remember. Craik and Lockhart (1972) see it as having both a maintaining and an elaborating function. The maintaining function - repetition - involves presenting a new item each time, so that the question arises - does this represent a new copy each time?

Bjork (1970) thinks it does, particularly in short-term memory. He calls this "massed practice" (p. 319). The elaborating function of rehearsal involves tagging or giving more attributes to the single memory trace. Rehearsal may be said to broaden rather than pile up items! Another aspect of rehearsal which helps us understand remembering versus forgetting, is that it does not necessarily have to be done out loud. We are all aware of unconscious rehearsal, when some kind of long-term mental effort produces what Posner (1973) calls the 'incubation effect'.<sup>(7)</sup> This is when problems are solved, or information is sifted through.

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(7) See Chapter Seven of Posner for an elaboration of the different mechanisms which could cause the 'incubation effect'.

Brown and Kulik (1982), who studied rehearsal in real memory situations, confirm that rehearsal does not need to be either overt or verbal. When a verbal task has been particularly striking or difficult, sometimes covert rehearsal of the information becomes ". . . as uncontrollable as the tongue that seeks an aching tooth" (p. 33). Brown and Kulik suggest that overt or covert rehearsal builds up associative strength

". . . between the verbal narrative created and the retrieval cues used in the various settings" (p.32).

Rehearsal as part of an intent not to forget obviously improves the shelf-life of memory. Covert rehearsal was performed by at least one of the children in my study, Molly,<sup>(8)</sup> in an attempt not to forget French.

#### 4.2.3 Retrieval Cues

If a rehearsed or elaborated item cannot be retrieved using the structural or auditory form, the search will turn to other attributes such as imagery or category or associative codes.

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(8) See Figure 4-3, page 143.

Postman (1976) amongst others, says that the retrieval process, like the encoding process, is flexible and adaptable. If one retrieval route is blocked, a detour will be found to pursue the target item. As for the 'tags' attached to items when they are being encoded, they seem to range in usefulness. Hyde and Jenkins (1969) asked two groups of subjects to perform different tasks on word-lists. One group had to mark words spelled with an "e". The other group had to mark the same list of words on the basis of pleasant/unpleasant. Not surprisingly, the group which recalled the words most readily was the group marking on the basis of meaning.

"In exploring the effect of many incidental tasks, we have discovered that instructions that focus the subject on the form of a word - its spelling, sound, length and one might add its order in a sentence, are very destructive to recall, while instructions that focus on the meaning give excellent recall." (Jenkins, 1973, p.164).

It would follow from this argument that Molly, Kate and Miles would have forgotten meaningless items of French, that is, those encoded by sound and structure, and would only remember meaningful

items. While this does prove to be so on some occasions, on others it does not. In fairness to Jenkins, he modifies this view by saying that the function of recall is

". . . not just what the outside world presents to you, but also is a function of the mental operations performed on the material furnished by the world." (p.163).

In other words, different mental functions were called into action when Molly and Kate were asked to memorize a poem than when they engaged or made contact with meaning, giving an emotive or associative response.

Locating the right cue to retrieve verbal items must involve elaborate cross-contextual referencing. We know from experience that retrieval comes from the most unexpected sources. Kintsch (1982) refutes the notion (Miller, 1973) that for each item to be learned, we put a tag on the corresponding word concept in our memories, so that in retrieval, we just look for the right tag - like looking for a bag in the left-luggage using a ticket. The retrieval process is obviously more elaborate and more complicated than this.

### 4.3 Retention and Forgetting : Children versus Adults

The changing intellectual processes which govern children's ability to remember have been covered at length (e.g. Hagen, Jougeward and Kail, 1975; Kail and Hagen, 1977; Flavell, 1977). Since this investigation is not primarily concerned with the developmental aspects of children's memory, I will briefly cover some of the issues, without losing sight of the primary questions of this study. A great deal of research has focused on the deficiencies of children's memories, compared to adults or older children. It is commonly observed that young children, unlike older children, tend not to think of making plans in order to avoid forgetting something. The central question about children's memory is : do children have a limited capacity to store information? In other words, is there a structural difference between the child and adult brain? Or, as children grow older, do they use their memory in a more strategic manner; that is, do they merely know how to organize the memory better?

#### 4.3.1 Structural Differences in Child/Adult Memory

Cook (1979) gives some insights into the child's ability to remember; she maintains that the

difference between the child/adult brain does not lie in any structural limitation; a child does not remember less than an adult, rather he does not see the value of retaining information in memory. Taking the example of an adult trying to remember language for a few seconds, Cook holds that typically, he remembers it as sound. Apparently, children remember outside stimuli more in terms of colour or shape rather than sound. This explains why young children, up to the age of 5 or 6, tend to confuse similar looking things in their memory, while older people confuse similar-sounding names.

On the whole, the kind of elaborative encoding which I discussed earlier in this chapter is not performed spontaneously by young children. Harris (1978) rejects the notion that such limitations in young children's memories are structural. He suggests that :

"Despite his logical, spatial and linguistic competence, the young child does not often make an effort to remember" (p.143).

The infrequency of elaborative encoding in young children may be attributed to this lack of effort to remember, or it may be due to limitations in processing. There is some experimental evidence

(Tyler and Marslen-Wilson, 1978) that there is a difference in the immediate memory capacity or 'processing span' between children of 5 and 11.<sup>(9)</sup> The inability of young children to hold more than a limited number of words in short-term memory does not mean that they cannot process and store chunks of meaningful material; they simply retain less of the lower-level detail which helps older memorizers to retrieve from long-term storage.

Thus, there is no deficiency in the child's retrieval processes, which are the fundamental capacity of the memory system. On the other hand, there may be a deficit in encoding. To use the computer analogy, the hardware - the capacity for conscious recall - may be complete in a child of 5 (see Tyler and Marslen-Wilson, 1978, p. 115); yet the software, or knowledge, available to the child hinders his memory performance.

#### 4.3.2 Cognitive Differences in Child/Adult Memory

To touch briefly on this widely discussed topic, it appears that the influence of what is already

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(9) See results and discussion of MLAT test (Appendix 10) for an example of such an 'information overload'.

known is more critical to storage and retrieval than structural considerations. As Flavell (1977) notes, one item of information can hardly act as a retrieval cue for another if there is no connecting link in the rememberer's system of knowledge. To remember, there must be an established body of knowledge to which an item can be associated or anchored.

According to cognitive psychologists such as Ausubel (1968), the difference in memory between young children and adults is a question of organization. Children's memory contains

" . . . fewer abstract concepts, fewer higher-order abstractions and more intuitive verbal understandings of many propositions" (p.103).

This contradicts the intuition of the youngest child in my study, that it is easier for children of 5 to learn, and to maintain that learning,

" . . . because then your memories have just developed; there's nothing to get all mixed up in there with".<sup>(10)</sup>

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(10) See Miles' language autobiography.

In fact, Miles, due to his limited stock of conceptually-related language data, would be less likely to store, retain and retrieve new 'inputs' of verbal information, in whatever language, than his sisters (see Chapter Six). It is clear that the tabula rasa of cognitive immaturity may preclude the younger learner from using his long-term memory to its full advantage, as well as limiting him in the kinds of strategic approaches used by older memorizers.

#### 4.3.3 Strategic Differences in Child/Adult Memory

J.W. Hagan (1971) addresses the question of how children learn to remember. He summarizes the behaviour which facilitates recall as involving more practice and more use of tactics. The difference in recall between the three children in my study (reported in Chapter Six) can be partly attributed to such factors. Apart from their broader conceptual development at the time, the twins had more opportunity to practise remembering. The purpose of much of their French language study was to retain information for some future testing situation. One wonders if the youngest child, Miles, had been placed in a similar high-demand situation, whether his recall of French have differed markedly? Obviously, different demands

as well as differences in cognitive development affect long-term retention of language.

Flavell (1971) suggests that young children perceive and assimilate the data around them in an unconscious fashion; they do not, without being instructed to do so, consciously try and process this data so that they will remember it. He concludes :

"For young children, therefore, all learning might be considered incidental learning, and all recall incidental recall" (p.276).

Certainly, all that seems to be consciously retained in Miles' memory of French at 9 years of age, in an experimental testing situation, is a few snatches of overlearned verse and some random words.

Unconscious memory was only hinted at; however, this provided some intriguing glimpses into what might remain in inactive memory below the threshold of availability under normal conditions of recognition and recall. The possibility of tapping such unconscious knowledge will be discussed in the next chapter.

Mnemonic strategies used by adults, such as scanning general knowledge, making inferences, and cross-

referencing to find the codes under which material is stored, are clearly too sophisticated for the average 5- or 6-year-old. Yet a young child can try to reconstruct the event or situation in which the to-be-remembered item occurred. He can cue himself by rehearsing the initial letter of the word. He can be taught to rehearse material overtly at the time of encoding.

Keeney et al. (1967) found that when children of this age were instructed how to rehearse material, using active verbal practice, they remembered as well as older subjects. However, they tended to abandon the effort when the experimenter ceased to instruct them. Other experiments (Flavell, 1977) show that while young children benefit from encoding and retrieving by category, they are not conscious that they do so. Left to himself, a typical 6-year-old does not exhibit such future-looking behaviour as conscious rehearsal in order to remember better. Gradually, between 6 and 9 years of age, the child begins to use storage and retrieval strategies actively with an accompanying growth in metamemory, so that by age 11, a child uses mnemonic strategies ". . . with expertise that approximates adults' skill" (Kail, 1979, p.32).

#### 4.4 Learning to Remember in Children

##### 4.4.1 Development of Metamemory in Children

It seems logical that a growing awareness or understanding of memory and forgetting, which is metamemory, would cause a child to take active steps to avoid forgetting. This was borne out by my study. The three children's language autobiographies attest that for older learners such as Molly and Kate, there was some value in remembering.<sup>(11)</sup> Miles shows very little awareness of metamemory.

Bizanz, Vesonder and Voss (1978) confirm this finding - that metamemory is only obvious in children of 9 years and older. The developmental sequence of metamemory is summed up neatly by Kail (1979) when he says

"Realizing that a fact is not learned well does not automatically lead a 6-year-old to study it further, but it does lead 8-year-olds to do so."  
(p. 59).

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(11) Kate (in language autobiography) : "I wrote things down . . . words that I had learned that day, and [I] just [used to] look them over and try and remember them. I used to write down them and their meanings . . . Mr Ngo would tell me what they meant and then I could usually remember them."

It is possible that a 6-year-old may think that information is in permanent memory store, when in fact, it is not. Even at age 9, Miles' 'feeling of knowing' judgements were less reliable than those of his 13-year-old sisters.

While they may be somewhat insensitive to the limitations or performance of memory, 6-year-olds are able to scan complicated stimuli such as a picture or story, and encode a meaningful representation of it; of course, this depends to some extent on the correspondence between the child's knowledge and the memory task. In the case of acquiring a second language, the number of stimuli to be remembered is too great to involve the use of most storage strategies, therefore the role of meaning in long-term retention is vital.

#### 4.4.2 The Development of Meaning in Young Children's Memory

A.L. Brown (1975) states that :

"If memory and meaning depend on the subject's knowledge of the world, the developmental implications are obvious; for there must be an intimate relationship between what the child can do or construct at a particular stage in his development

and what he can remember or reconstruct." (p.116).

Taking this into account, by age 5 a child can already process and comprehend semantic information very proficiently. Tyler and Marslen-Wilson (1978) claim that the differences in 5-year-old and adult memory performance is not caused by inadequacies in their semantic processing system. Like adults, young children appear to have the ability to infer the gist, rather than remembering the actual words of statements (Moeser, 1976). Thus, a child of Miles' age in Niger could comprehend and assimilate into memory in the same general way as his older sisters - disregarding some features of the input, reorganizing other features and adding information, as in Bartlett's reconstruction process. According to most reports, even for a young child, meaning is still the important aspect of remembering, rather than isolated, meaningless items (see Chapter Six for the arguments for sense or sound in children's long-term memory).

The difficulty of testing long-term memory for meaningful items in young children was circumvented by Ratner and Myers (1981) by asking children of different ages to name items which could be placed in the rooms of an empty dollhouse. They found

that, despite a good deal of knowledge, a 4-year-old child was not able to retrieve much active information. The increase in production with age suggested to them that information is more accessible to older children. One conclusion could be that young children require much more external context than was provided by the empty dollhouse's rooms in Ratner and Myers' experiment : more contextual cues may be needed to allow retrieval of specific language information. Certainly my own results are consistent with this conclusion.

Whether long-term memory retrieval in children or adults is dependent on the availability of the same cues presented at the time of encoding (Tulving and Thomson, 1973) remains to be examined in Chapter Six.

PART II

DATA FROM & ANALYSES OF SPECIFIC CASES  
OF FORGETTING A SECOND LANGUAGE

CHAPTER FIVE5. SPECIFIC STUDIES ON FORGETTING A SECOND LANGUAGE

A century of exhaustive empirical investigation of memory and forgetting has yielded some of the theories set out in the last three chapters. In making this review of the experimental findings of memory research, I was struck by the dearth of information on forgetting a body of real-world knowledge such as a second language. Either experiments cover forgetting over a short time-span, to avoid methodological problems, or they are concerned with retention or loss of knowledge which is rehearsable and/or highly structured. My real interest goes beyond either of these experimentally neat situations. People's second language - a complex, amorphous body of linguistic and social experiences - is related, according to Rivers and Melvin (1977)

". . . to the totality of their experience, which is a vast network of interrelated concepts composing their long-term memory - not just to their minimal acquaintance with the forms and units of a second language." (p.166).

Studies of children who successfully learn a second language when already speaking a first language are rare;

studies of children who learn a second language and forget it are even rarer. I know of only one researcher (Cohen, 1974, 1975a) who has systematically focused on the aspect of losing a language in which one was once immersed for a period of some years. There are a number of case studies, some of which were mentioned in Chapter Two, which closely follow children in the course of acquiring second language skills. Some of these studies go on to mention subsequent forgetting but with nothing like the specific documentation of the acquisition process.

A wealth of information exists among laymen on the topic. On hearing of the subject of this study, many people contributed insights, or offered themselves as subjects for testing. People with no linguistic background reported personal case histories to me, of losing an African language which they spoke fluently in childhood; of observing a child who apparently lost a second language overnight when the family was involuntarily expelled from the country; of listening to a spouse talking in his sleep in a language to which he had had no exposure since the age of 7. Unfortunately, lack of documentation has prevented me from exploring these topics. However, a common thread is that forgetting a language usually involves moving to a different linguistic environment.

## 5.1 Anecdotal Research Data on Forgetting a Second Language

A number of linguist parents have noted the loss of skills which accompanied a change in linguistic milieu.

### 5.1.1 Leopold

Leopold (1939-1949), in his monumental work on his daughter Hildegard, reports that at age 5 she seemed to forget English during a half-year stay in Germany, to the point where she would not even speak it with her English-speaking mother. Less than a month after returning to the United States, Hildegard regained her former fluency in English, with a resulting loss of fluency in German. Despite the fact that her father continued to speak German to her in America, by the time she was 7 years old, Hildegard's German showed phonological and lexical deterioration. When pressed to search, she could still retrieve some vocabulary items, though over time she became more reluctant to make the effort, until at age 16, she comprehended German but was unwilling or unable to speak it. From this, it appears that recognition - the retention of familiarity - shows greater stability over time than recall, which seems to be particularly vulnerable to the interference of subsequent experience. It should be mentioned that comprehension

and production can be aspects of both performance and competence. Brown (1980) rejects the notion that "comprehension - (listening/reading) can be equated with competence, while production (speaking/writing) is performance" (p. 30). While production is more observable, comprehension nonetheless involves an act of the will. Dormant language skills may not respond to auditory or visual stimulation.

#### 5.1.2 Dulay, Burt and Hernandez-Ch.

In a contrary indication, Dulay et al. (1975) report that in university language programmes in the U.S., it has been observed that Chicano and Puerto Rican students who have not spoken Spanish since childhood and retain poor skills, regain control of the language when exposed to substantial amounts of spoken Spanish. The rapid revival of Spanish in these students suggests that the so-called memory trace has become temporarily unavailable and that a subsequent layer of new information (post-active interference?) has to be penetrated to release their earlier competence. Leopold talks of Hildegard searching for items of vocabulary as though they are buried under a temporal stratum of experience. Following his recognition test (see his language autobiography), Miles reports a similar

intuition about French : "I know it's still back there! It's buried deep in the ground."

### 5.1.3 Oviedo; Celce-Murcia

Several studies on child language acquisition mention the loss of a second language in young children, some of whom retain a residual form of receptive skills (comprehension). Oviedo (1979) followed the natural second language acquisition process of his 3- and 4-year-old Colombian children in an English-speaking environment. He observed that after returning to a Spanish-speaking environment, the children spoke English together for a short while, but then the language gradually fell into disuse. According to Oviedo, the children retained some recognition of the language since they continued to read in English, though he does not say for how long.

In another study, Celce-Murcia (1977) documents a 3-year-old's waxing and waning knowledge of French during and after a summer holiday in France. Unfortunately, the age of the child and the brevity of the exposure reduces the usefulness of Celce-Murcia's contribution towards understanding real second language forgetting.

#### 5.1.4 Burling

While anecdotal, a more useful study is that conducted by Burling (1959) on his son Stephen, who acquired Garo in India from 16 months to 3 years of age. On returning to an English-speaking country, Stephen went from being Garo-dominant to having trouble with the simplest Garo words. By age 5½, Stephen only actively retained a few words of Garo, which were used by his family. It is a source of regret that Burling did not follow the forgetting process with the same attention he gave to the acquisition process of Garo. The operative question remains : if Stephen should return to the Garo Hills, would he learn the language in a shorter time than a similar English-speaker who had never before heard Garo? In theoretical terms, is the originally encoded trace system intact, except no connection can be made between it and the conscious mind? The second part of this chapter offers some speculative answers to these questions. It is possible that this is so, but retrieval depends on many factors, not the least of which is the degree of intensity of 'need-to-remember'. Recall after a long period of disuse meets with many obstacles. The effort to surmount these calls for a strong motivational drive, and cases of total forgetting point to the lack of such a drive.

### 5.1.5 Ervin-Tripp

The problem with the studies cited is that they do not systematically study what is lost and retained of a second language after a long period of disuse. Some light is cast on the subject by Ervin-Tripp (1976) who almost incidentally includes some illuminating detail on forgetting in a study of English-speaking children acquiring French by immersion. "By chance", she says,

"we encountered two American children who were losing English after nine months of living with their Swiss mother and grandparents in Geneva. Their family language had been English until then, but their father was absent in the Air Force. They were extremely reluctant to respond to English speech, and when they did, used comprehension patterns similar to those of the other children after three months' exposure to French. That is to say, they interpreted English passives, but not French passives, as if they were active. They had regressed to a simpler sentence-processing heuristic, in which the cue from the function words and suffixes was inoperative, and the primary pattern NVN = SVO appeared."  
(p.198).

Ervin-Tripp's comments are of interest because they point to a deterioration in comprehension as well as production over time - the former of which is generally considered to remain longer in memory. Supplementing these observations, Ervin-Tripp relates a personal communication with the Israeli linguist Shaltiel (1976, p.206) concerning regression to simpler forms in the use of a first language. Shaltiel observed the language loss of Hebrew by a child living in the United States. He noted that the irregular forms of Hebrew were particularly vulnerable, indicating that the over-generalization stage of child language may occur.

This was borne out by my own study (Chapter Six). After two years of hearing English spoken outside the home, Shaltiel's 6-year-old lost the ability even to say "I want to go home", which apparently has two irregular forms. Similar patterned deterioration of syntax was observed in the forgetting process of the two older children in my study, who avoided the use of irregular forms of French. The lexico-syntactic changes caused by forgetting seems to follow Le Ny's (quoted in Chapter Four, 4.1.5) taxonomy of loss of specificity, overgeneralization and omission rules, which are evident in the language acquisition process.

I shall review two studies of retention and loss of

a second language which relate to my own sphere of interest, following which, I will consider some new dimensions in testing the recall of a forgotten language.

## 5.2 Cohen and the Culver City Immersion Programme

### 5.2.1 Background

In this brief yet detailed experiment, Cohen (1975a) investigates the relationship between language acquisition and language forgetting. His focus is foreign language retention among children who had been absent from their Spanish-medium school for a three-month holiday, during which they were reimmersed in an English-speaking milieu. Cohen's subjects were three children in the Culver City Spanish Immersion Programme, which essentially followed the St Lambert procedure described in Chapter Two (Section 2.2.3), in Los Angeles. These Anglophone children had been taught exclusively in Spanish for their first two years at school. At the time of pretesting, they had had 19 months of classroom contact with Spanish, which corresponds to the length of exposure to French of the youngest child in my study.

The difference between the two testing situations is that Miles also had considerable out-of-school contact with French, in addition to being

tested two years after no contact, rather than three months. Cohen's study, nevertheless, looks at the same aspects of forgetting which relate to my study : the first concerns whether the last things learned were the first things to be forgotten, and the second concerns whether the forgetting process involved unlearning in the reverse order from the original learning process. Cohen used criterion-referenced materials, in that they had all been a part of the children's first-grade curriculum. He thus avoids one of the main obstacles in testing long-term forgetting - the problem of objectively validating the previous existence of language skills, or at least, the degree of earlier mastery. In addition, his subjects had all been studied at regular intervals during their acquisition of Spanish.

The three subjects were given a semi-structured Oral Language Achievement Measure after 20 months of language contact and again after a three month pause in the learning process.

### 5.2.2 Results

On the post-test, data from two of Cohen's subjects supported his hypothesis that some items learned last were also the first to be forgotten.

Grammatical distinctions such as verb inflections, which had been acquired in the 17 month of language contact, were forgotten after the three month break. In the post-test, one subject reverted back to overusing the feminine singular form of the definite article, whereas before the break, she had correctly used both masculine and feminine forms. The same subject, who had mastered the present progressive tense in the pre-test, had forgotten it by the post-test. Conversely, indefinite articles, which were learned early, seemed to be stable, supporting a first-learned, last-forgotten principle.

Cohen's second hypothesis, that unlearning would occur in the reverse order from the original learning process, was tentatively supported by data from his third subject, who gave examples of reversion to an earlier pattern in the use of the definite article; however, errors in this subject's use of tenses appeared to be slips rather than reversals to an earlier form, weakening the reversion hypothesis.

### 5.2.3 Discussion

Cohen's difficulty, which I also experienced, is insufficient data. R. Brown (1973) requires five occurrences of an incorrect form before he considers

it to be an error, rather than a mistake or slip. Thus, the distinction between errors and mistakes is difficult to make without copious amounts of natural data. The use of relatively unstructured tests to elicit authentic language generally does not ensure the sufficient occurrence of a particular form, to make error/mistake judgements. Cohen adds the proviso, too, that the absence of a form in such tests does not necessarily mean that it had been forgotten, which also applies to my own testing.

One unexpected outcome of Cohen's investigation was the appearance of incorrect patterns which had not been present during the acquisition period of his three subjects. He suggests that forgetting may produce tentative forms that were not tried out during the original learning period. "It is as if the break itself stimulated these untried but plausible combinations", says Cohen (1975a, p. 137). An obvious implication of this finding is that the forgetting process could actually produce residual learning, in that unconscious rehearsal, or the 'incubation' effect (Posner, 1973 - cited in Chapter Four) could cause incorrect forms to be considered and rejected. This coincides with Piaget and Inhelder's (1973) finding that cognitive growth may actually enable children to remember tasks correctly

that they performed incorrectly at a younger age (such as organizing sticks of different length into increasing length). Cohen's speculation that children's second language may improve with no contact over a period of time is interesting but somewhat controversial. A great deal more evidence would be required to substantiate such a notion; for while some unconscious aspects of skill-learning may possibly be enhanced by an incubation period, for most children, the repetitive aspect of exposure to a second language seems vital to their retention of proficiency. As Rivers (1977) points out - rules are instructions to be tested in use.

The three-month hiatus between pre- and post-testing for second language skills involves a different experimental task than testing after a two-year hiatus. I am unaware of a study which tests children after such a long period apart from the more anecdotal case studies referred to earlier. In the interest of looking at this longer term retention of memory, I will now look at a second study of adult memory for a body of knowledge over a two year interval.

### 5.3 Allen and Reber : Very Long-Term Memory for Synthetic Language

#### 5.3.1 Background

Allen and Reber (A/R) (1980) examined very long-term memory for highly complex, abstract data. This took the form of artificial grammars, which had been learned two years before by 10 adults. A/R specifically studied the retention of structural forms of language, which are less likely than communicative forms to be rehearsed, or used in normal day-to-day activities. Their subjects, like the children in my study, were not aware at the time of learning that they would be tested at this much later date.

In an unusual departure, the focus of A/R's research is on the longevity of implicit rather than explicit knowledge. Their method in the original learning experiment was to teach the grammatical structure of two different artificial languages over fifteen minute periods. Two different training conditions were employed. The first used paired-associates, and the second observation of examples from the other language. A test was given after the learning period, to ascertain whether the subjects could make well-formedness judgements about the artificial language.

### 5.3.2 Results of Original Testing

The results of the original tests revealed that the subjects had used three ways of memorizing the synthetic grammar. The first involved testing out consciously perceived rules, in what A/R call "explicit rule induction" (p. 177); the second involved rote-learning of particular examples, which led to high accuracy in the test on previously seen items, but not on novel ones; the third method of memorizing involved the unconscious abstraction of the underlying rule system, resulting in a more intuitive grasp of the language structure, which seemed to enhance performance on novel items.

The importance of Allen and Reber's study, in relation to my own, is this issue of the mode of acquisition of knowledge, and how it determines retention of language in long-term memory. As previously mentioned (Chapter Three, Section 3.3.3), the children in my study also demonstrated a variety of attributes in encoding French; their long-term retrieval from memory reflected the learning strategies used at the time of encoding (see Chapter Six). Thus, if a child's cognitive base prevents him from generating the kinds of cues used by adults when memorizing a language, it is less likely that he will be able to retrieve the

forms of the language as efficiently.

### 5.3.3 Results After Two Years

Allen and Reber conducted recognition tests two years later, on eight of the original ten subjects, for their residual knowledge of the synthetic grammars. Initially, most of the subjects expressed disbelief that they would be able to remember any of the grammatical structures (like the subjects in Bugelski's experiment cited in Chapter Four, Section 4.1.4). During the course of the test, however, they were surprised to discover that they were still able to make well-formedness judgements.

"Our subjects knew they were performing above chance, but they had no sense of just how well they were doing", (p.180)

say A/R, which points again to the relative unreliability of the 'feeling of knowing' discussed in Chapter Four. The eight subjects were rarely able to explain consciously for reason for their choices, which accounts for their relatively poor judgements about their residual competence in the two-year old languages. The three children in my study reflect, in varying degrees, the same intuitive

approach and the same uncertainty about how they knew what they knew (see Appendix 8). It is interesting to note that A/R's subjects experienced a sense of improvement in their performance as the tests progressed which was not related to any significant increase in the amount of knowledge they recalled. This was thought by the testers to relate to a refamiliarization with the task.

In general, Allen and Reber's subjects showed a remarkable retention of both abstract and concrete forms of the artificial grammars in very long-term memory. The degree of retention was associated, however, with the mode of acquisition. Explicit or conscious knowledge proved to be more fragile without rehearsal than implicit knowledge. Despite the differences in task and approach, Allen and Reber come to a conclusion similar to Cohen's, that while linguistic knowledge survives in memory if it is rehearsed, it is equally apparent that implicitly acquired knowledge may be retained in long-term memory without rehearsal.

Allen and Reber conclude from their tests that implicit learning can be remarkably durable and accurate over long periods of time. They also conclude that the level of processing necessary for long-term memory of language can involve

rule-finding or by memorizing examples : that both cognitively-based, abstract structural knowledge (Tulving's (1972) 'semantic memory') and concrete, subjective knowledge ('episodic memory') are both processed deeply enough to resist deterioration in long-term store. One qualification is made, which relates to the results of my own tests - that while the strategies of analogize and rote memorize resulted in a recognition advantage, the abstraction strategy favoured identification of underlying rules by the subjects of A/R's study. From this, they deduce that very long-term memory is not uniform in nature, due to the effect of different strategies used on encoding, which in turn are affected by the varying demands and stimuli of the learning situation. This was borne out by my study.

#### 5.3.4 Discussion

The implication that subsequent environmental and affective factors do not change data in long-term storage is clear, yet debatable. According to A/R, while some blurring occurs with the passage of time, the form and structure of the original learning remains relatively unchanged. Differences are attributed to acquisition mode and conditions of initial training.

A counter argument to this view is found in Chapter Six, since my test results point to some intervening influences on retrieval capacity, if not on the information itself. Cohen, likewise, suggests that linguistic knowledge may change in memory, due precisely to the passage of time and the nature of the original learning. Allen and Reber's conception of unchanging memory coincides with Bartlett's (1932) 'low level' form of remembering, involving memory traces which are completed on encoding, and cease to change, such as rote-memorized items, habits, and items ingrained by training or acquisition strategies. The nature of Allen and Reber's stimulus material precludes the kind of dynamic 'higher-level' remembering, which Bartlett conceives of as an active process of reconstruction (see Chapter Three) rather than a mechanical revival of statically encoded material.

To sum up, while Allen and Reber's experiment offers some insights into how individual learning patterns influence the encoding of the memory trace, the experiment by Cohen, while less defined and precise, is more valuable to researchers looking for an understanding of second language loss. Cohen does not focus solely on the organizing activity of the learner at the time of encoding, but also at the developmental factors and subsequent experience

which determine what is retrievable from long-term memory.

Despite Allen and Reber's experimental demonstration of the robustness of unrehearsed tacit knowledge in adult memory, retention of a second language in children's memories has proved to be more ephemeral. I will now turn to some research that has been done on retention of childhood or school languages by adults.

#### 5.4 The Revivification of Lost or Forgotten Languages

Campbell and Schumann (1981) contend that the number of people who have learned a language, and later have lost the ability to speak or understand the language is very large. While no figures have been compiled to substantiate this contention, general observation tells us that this is so, and certainly the children in my study illustrate this phenomenon.

I share Campbell's interest in whether such forgotten second language skills may still reside in memory - in an unavailable form. Despite some misgivings over the validity of the tests I will discuss, there is sufficient documented evidence to warrant a brief look at several well substantiated cases of the spontaneous revival of forgotten languages. It must be

said as justification for including these cases for consideration that there is little empirical data to support other speculative notions, such as the physical reality of the memory trace in the brain, yet this trace distinction is still well-accepted and is considered to be a valid theoretical tool.

#### 5.4.1 Penfield and Paradis : Neurosurgical Language Revival

Perhaps the most widely-known experiments on the reactivation of memories by neurological stimulation were conducted by Penfield (1958), who reported case records of patients who, under local anaesthesia, received electrical stimulation to the temporal lobe, and reported vivid remembrance of past scenes. Penfield is led to believe from this, that auditory and visual experiences are retained ". . . in a continuous string of current experience" (1954, p. 303) - even when forgetting processes interfere with recall.

Such a radical hypothesis is cautiously received, since it does not recognize the variables of cognitive, linguistic and psychological development, although Penfield's theories do allow for a reconstructive aspect in permanent memory, based on his observations of some false but vivid memories

which were released under electrical stimulation.

Other clinical reports support the hypothesis that a forgotten second language may lie below the threshold of retrieval in permanent memory; for example, Paradis (1977) reviews the case of a woman patient who, after surgery, spoke in a language which she had not used since she was at school, 30 years before (p. 111).

5.4.2 Reiff and Scheerer : Revival of a School Language Under Hypnotic Age Regression

In an attempt to verify the wholeness in permanent memory of forgotten language skills, the psychologists Reiff and Scheerer (1959) looked for subjects who by known standards had at one time fulfilled certain foreign language requirements. The researchers chose a 26-year-old woman, who at 14 had won medals in high school for Latin/English translations. In a pre-testing interview, the subject was unable to perform any of the translation, conjugation and declension tasks which had won her medals in her teens. However, when Reiff and Scheerer age-regressed the subject to age 14 under hypnosis, she accurately translated three substantial passages from Caesar's "Gallic Wars", which she had been manifestly unable to do at her real chronological

age. She was also able, under hypnosis, to correctly answer the questions on verb conjugation and noun declension which she had failed to do in a pre-hypnotic state. Reiff and Scheerer conclude that

" . . the delving into forgotten memory may be a suitable method to put the findings in hypnotic age-regression on an objectively valid basis."  
(p.204)

I will reserve comment on this until the end of the chapter.

#### 5.4.3 Ås : Retrieval of a First Language under Hypnosis

A more detailed linguistic experiment on the revival of a lost childhood language is reported by the psychiatrist Ås. He tested, under hypnosis, an 18-year-old student, who had been Swedish-speaking before immigrating to the United States at the age of 5. Subsequent to his mother's remarriage, the student had had no more exposure to Swedish, even in the home. Ås presented him with 56 questions in Swedish, geared to the level of a 5-year-old. The test was graded on a four-point scale, from not understanding at all, to understanding and answering correctly. Almost 80% of the student's answers, in a pre-test, came under the category of

"not understanding", whereas less than 10% were at the top level of "understanding and answering correctly". The five questions he answered correctly involved cognates, such as "klokka" (clock), which obviously facilitated the student's task. Miles makes similar use of cognates in remembering (see Appendix 8). Under hypnotic age regression, however, the student reduced his non-comprehension considerably (see Figure 6-1, overleaf).

As' test is not altogether convincing. The student, under hypnosis, could recall only six of the automatic sequence of numbers from 1 - 10; one would assume that by age 5, he would have been thoroughly familiar with these numbers. In addition, he did mix the two languages to some extent, which is strange since the subject learned each language sequentially. The test results show that almost 50% of the Swedish questions were still not understood at all, even when the subject was supposedly regressed to an age when he had formerly been able to understand them. It seems possible that hypnosis might indeed increase the recall of a 'forgotten' language but only in the same way as Guiora et al. (1972), who induced temporary states of lowered inhibition and increased performance in second language phonology by giving small quantities

FIGURE 5-1LEVELS OF COMPREHENSION OF 56 SWEDISH QUESTIONS

	Level 1	Level 2	Level 3	Level 4
Pre-hypnosis	44	16	7	5
Under hypnosis	26	9	14	25

Level 1 = Not understood at all

Level 2 = Understood only in part

Level 3 = Understood but not answered

Level 4 = Correctly understood and answered

(From Ås : "The Recovery of Forgotten Language Knowledge Through Hypnotic Age Regression", 1963)

of alcohol to experimental subjects. Guiora concluded from the results of his experiment that inhibition can cause a barrier to communication in a foreign language.

In conclusion, whether a language learned in childhood remains intact in long-term memory or whether it remains partially, in an eroded form, is not decided by Ås' experiment. One documented case gives rise to speculation that given the right conditions, a childhood language might reveal itself in an uneroded form.

#### 5.4.4 Fromm : An Unexpected Case of Revival of a Forgotten Childhood Language

One of the more dramatic examples of the revivification of a forgotten language is reported by Fromm (1970) who describes how a 26-year-old American Nisei (i.e. first generation American of Japanese parentage) spontaneously broke into a stream of rapid Japanese for 15 or 20 minutes, when age regressed under hypnosis to age 3 (p. 80). In a post-hypnotic state, the subject was amazed to learn of this evidence of bilingualism, since he had been unaware of ever having had any knowledge of Japanese (his family had always spoken English in the home). On a subsequent test, several weeks

later, Fromm age-regressed the same subject and was able to record a tape of him giving a monologue in Japanese (see Figure 5-2, overleaf). When translated, the monologue concerned a puppy which the subject had apparently owned as a young child. Fromm was able to investigate the background of her subject; it emerged that he had spent several years in an internment camp (for Japanese in America during World War II) in his early childhood. Subsequent to his release at age 4, he had only heard or spoken English. Campbell and Schumann (1981) asked a Japanese linguist to analyse Fromm's recording, without giving the linguist any background to the data on the tape. He commented that despite the adult quality of the voice, the utterances were incomplete and incorrect, which he described as being childish, at the 3- to 5-year-old level of language development.

#### 5.4.5 Campbell and Schumann : Current Research on Hypnotism as a Tool for Reviving Forgotten Languages

From Fromm's study, Campbell and Schumann claim incontrovertible support for the notion that a language which was once used proficiently, and was subsequently lost, does in fact reside in the memory of the learner. Taking up Reiff and Scheerer's suggestion for more study of forgotten

FIGURE 5-2

PARTIAL TEXT OF THE MONOLOGUE BY FROMM'S SUBJECT

Japanese	Translation
Bo Hai bo bo hai bo bo bo	M yes m m yes mmm
Boku no inu yo	It is my dog
Hai	Yes
Hontoni ii desu	Really very good
Hontoni ii desu ne	It is really very
Boku no inu yo	It is my dog
Boku no	Mine
Boku no inu yo	It is my dog
Boku no	Mine
Ii yo, hontoni ii yo	Very good, really very good
Hontini ii yo, hai	Really very good, yes
Hontoni ii yo	Really very good
Arigato akaasan ne	Thank you, Mother
Arigato okaasan	Thank you, Mother
Boku honitoni inu suki	I really like the dog
Koko ne - koko	Here - here
Boku no homai yo	My (homai = dialect?)
Asuko wa boku no inu yo	Over there is my dog
Hontoni kashikoi kawaii inu	Really smart, cute dog
Ita su ya	(Probably dialect)
Kawaii	Cute
Hontoni ano wa	Really that is
Hontoni oki me de	With really big eyes
Hontoni kawaii okii menme	Really cute big eyes
Asukono inu wa boku no yo	Over there, that dog is mine
Boku no	Mine
Watashi no inu asuko yo	My dog is over there
Watashi no	Mine
Sayonara	Goodbye
Doshite anata wa	Why don't you
Koko no harimasen	Come into this place?

memory through hypnotic age-regression, Campbell and Schumann tried to test out the hypothesis of 'intact but beyond conscious retrieval', by reduplicating Fromm's study - but with little success. The main flaws of hypnosis as a usable tool in reviving second language skills are brought out by their failed attempts. Firstly, they were able to locate few subjects who met their requirements of former bilingualism, who were willing to submit to hypnosis, and who rated sufficiently high on the pre-hypnosis to warrant testing. Of the few subjects who met their criteria, only two subjects "heard and comprehended" (p. 91) forgotten languages, but were unable to speak them, indicating, possibly, the distinction between receptive and productive skills in long-term memory. No subjects demonstrated the fluent stream of language elicited from Fromm's subject.

The very basis of experimental research is that, to some extent, the experiments must be reduplicable by other researchers. The failure of Campbell and Schumann to tap forgotten language skills does not necessarily invalidate the case studies I have cited, but indicates the very limited use of hypnosis as a testing-tool, so far as we know. What these case studies do indicate, however, is

that trace decay and interference theories of forgetting may be only useful when investigating conscious memory. The realm of the unconscious remains largely untapped, and until proved to the contrary, it is possible that retrieval failure may underlie the forgetting of a second language.

CHAPTER SIX6. REPORT ON TESTING FOR RESIDUAL SECOND LANGUAGE SKILLS

The point of departure of this investigation was the unqualified assertion by Miles that he could remember no French whatsoever, four years after his first exposure to the language and two years after withdrawal from it. Molly and Kate gave a cautious estimate of their retention of French. They both conceded that they could only consciously remember a few words; on the other hand, they felt they had in the back of their minds a knowledge of the language which would surface should they need it. I was interested in testing these 'feeling of knowing' judgements, to see if they were valid predictors of the children's underlying competence of French.

Having decided to probe what, if anything, was retained, I tried to make the task more manageable by following Coltheart and Geffen's (1970) suggestion; namely, that the three components of Chomsky's (1964) generative grammar, phonology, syntax and semantics, are also the main components underlying memory for verbal material. According to Katz's (1973) definition, phonology concerns the pronunciation of sentences, syntax concerns the way they are built up out of their constituents, and semantics

concerns the literal meaning of sentences and their constituents. It is assumed that someone who 'knows' a language is aware of what is correct pronunciation, which forms are acceptable and which are not, and whether a sentence makes sense or not, so long as the language is of an appropriate level for the person's age and knowledge. In other words, would the three children be able to say, on hearing items of French : "The sounds are familiar", or "The way it is put together is right", or "It means this" ?

The question then arose - which of these three aspects of language would be most easily remembered, if any? From an educational standpoint, to explore whether sound takes precedence over sense in children's long-term memory for a second language or vice versa, is of a fundamental interest. The more we know about language in long-term memory, the more likely we are to be successful in teaching second languages in a way that they will be retained.

Baddeley (1966) suggests, along with many others, that short-term memory uses sound for storing information, but that long-term memory uses a semantic code (see Chapter Two, Section 2.1.1, for a discussion of age and phonological considerations in language learning).

A contradictory view expressed by Ervin-Tripp (see Chapter

Two, Section 2.1.1) holds that the semantic code is used by adults, but for children under 11, language is phonologically encoded. According to Baddeley, should the children in my study retain any French competence after 2½ years, it would be semantically based. Yet Ervin-Tripp's view, that their memory base might be phonological, is plausible too. Since the children began by listening to French for sound, and ended by listening to French for sense, the forgetting process might work in the reverse order, in a kind of de-programming of the language, so that in the end, a 'first learned, last forgotten' effect might emerge.

### 6.1 Recognition Test

In the interest of exploring what broad areas of competence Kate, Molly and Miles did or did not retain, I devised a recognition test, in conjunction with a native French language teacher, Dominique Williams. A recognition test is considered to be less intimidating than other tests, as it presents a subject with previously experienced, or old 'events' combined with novel ones (in this case, incorrect French). The content of the recognition test was designed to maximize the likelihood that available information would be recognized. No reading, writing or speaking was required. The three children merely

listened to the kind of language that they had heard in their home environment when they spoke French (see Appendix 6 for test).

#### 6.1.1 Subjects : Biographic Data

Kate and Molly are identical twins, sharing many common experiences and personality traits (expressive, conscientious, musical, etc.). Although separated in school from the beginning, they achieved very similar marks (see Appendix 4), with Kate showing a minimal scholastic advantage. They attended a French Government school in Niger for two years, between the ages of 9 - 11. Their brother, Miles, 3½ years younger, attended the same school from age 5 - 7. He is an articulate child, slightly ahead of his age-group scholastically, with an outgoing personality. The children's ages at the time they were learning French coincided with the Piagetian concrete operational period, according to which they should all have had the ability, in varying degrees, to discriminate and to learn the underlying rules of the target language. The target language and culture were French; the staff and most of the student body at school were expatriate French. Molly, Kate and Miles were put in separate classes, and were not allowed to speak

English to each other during break. The French educational system in West Africa tends to be rigid, relying heavily on rote learning in the primary classes. Pupils were taught, on the whole, by the 'dunce-cap' method; corporal punishment was commonly used. Kate and Molly, in particular, had an understandable sense of urgency about mastering French.

All three children employed French in social as well as school settings, and had occasion to speak it frequently at home and in daily life. Kate made two close French-speaking friends at school. Molly, in part because of the difficulties she experienced with her second-year teacher, felt ostracized by her class during that year (see her language autobiography). By age 6, Miles had a number of French-speaking playmates. In conversation with English speakers who he knew spoke French, he tended to code-switch between French and English,<sup>(1)</sup> according to the situation and the subject matter. The twins code-switched too, but to a lesser degree.<sup>(2)</sup>

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(1) See Appendix 11 for transcript of a taped conversation between Miles and the author in 1980.

(2) Molly (language autobiography) : "With the [English-speaking] grownups I used to watch my language and speak English the whole time, but to the girls and boys in Mr Ngo's class . . . I always used to be saying French words."

After two years, the children left the French-speaking environment and began school in English in South Africa. As school subjects, the girls studied Sotho and Xhosa, sequentially, while Miles learned Afrikaans. Following the final recall test, Kate and Molly started to relearn French as a school subject. All three children participated willingly in the test, showing no particular anxiety. Because of the uniqueness of the testing situation, it was well-nigh impossible to pre-test, since no similar group of children could be located, and the children themselves had to have no contact with French. Ideally a much larger group of children would have been tested, had they been available.

To ensure that a French-speaking 6-year-old (the median age of Miles when he spoke French) could accomplish the task, I used Christophe as a control for Miles in the recognition test. Christophe, aged 6, was born in France and brought up in a French-speaking home but had been exposed to English in South Africa for several years. He had completed one year in an English-speaking school and was considered by his parents and teacher to have a good language learning ability.

## 6.1.2 Method

### 6.1.2.1 Stimulus materials

The recognition test consisted of three sections (phonology, syntax and semantics), each containing 20 sentences. Of the total 60 sentences, 30 were correct French (old items) and 30 were similar but incorrect (novel items). The sentences used were from daily life; they included exclamations, commands, questions and propositions. The semantic section used pictures, previously unseen by the children; the purpose of using these picture cues was pragmatic, intended to elicit semantic recognition without requiring the children to speak, write or act out. Yes/No answers were the only response required throughout the test.

### 6.1.2.2 Procedure

The test was conducted by myself and Dominique Williams in the children's home environment. Before each section, the children were asked to focus on a particular aspect of French (sound, grammar or meaning). They were told to respond in all cases "yes" or "no", depending whether or

not, as best they could remember, the item corresponded with correct French sounds, form or sense. Each child was reminded that some of the items were acceptable and some were not. The opportunity for relearning was not deemed significant since half of the sentences were not correct, so that any improvement in scores would point to remembering. No other information about the task was given. No feedback, verbal or facial, was given about right or wrong answers. The same test was given four times; twice on the first day, with an interval of 45 minutes, and twice, with the same 45-minute interval, three days later. The four repetitions were done as a means of identifying if a guessing strategy was being used. On each occasion, the same procedures were followed (by Williams), using a tape recording to ensure uniform presentation of the test.

#### 6.1.2.3 Additional data

After the fourth test, Kate and Molly were each asked to comment on their feeling of knowing about French. These comments are included in Appendix 1. Miles provided an explanation for 'how he knew what he knew' in the semantic section (see Appendix 8).

### 6.1.3 Results and Discussion

The results of the recognition test are shown in Figures 6-1, 6-2 and 6-3 (pages 202 and 203). It must be noted that a score of 50% or under merely represents guessing. If the children should decide upon a "yes" strategy, half of the questions could be scored as correct, so the only significant results are those over the chance level of 50%. Below 50% indicates that non-recognition is more likely. 55% plus shows that residual recognition is more likely than non-recognition.

I will first examine the results in the three areas tested; then, in the light of this, I will discuss the accuracy of the children's feeling of knowing. Speculation on why certain items were forgotten, and the memory mechanisms involved, will follow in the last chapter.

#### 6.1.3.1 Phonology

- (a) Miles, who had been tested first, showed marginal recognition of the French sound system. He incorrectly identified items of German and Russian as French, as well as items overlaid with English pronunciation and intonation. Using Carroll's

RECOGNITION TEST

RESULTS

FIGURE 6-1 : Molly, Kate and Miles' Scores (Average over four repetitions)

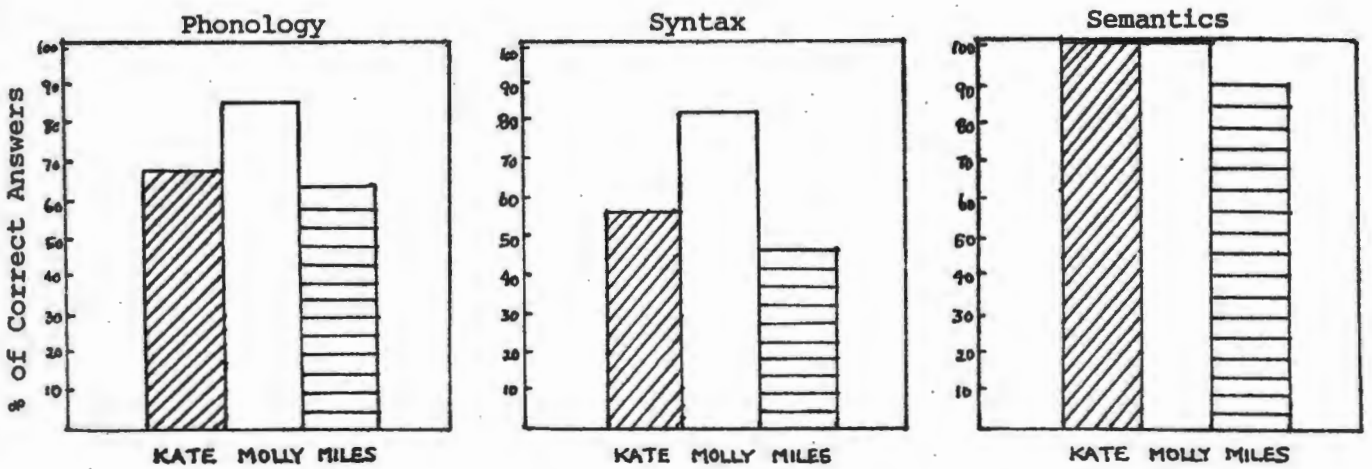
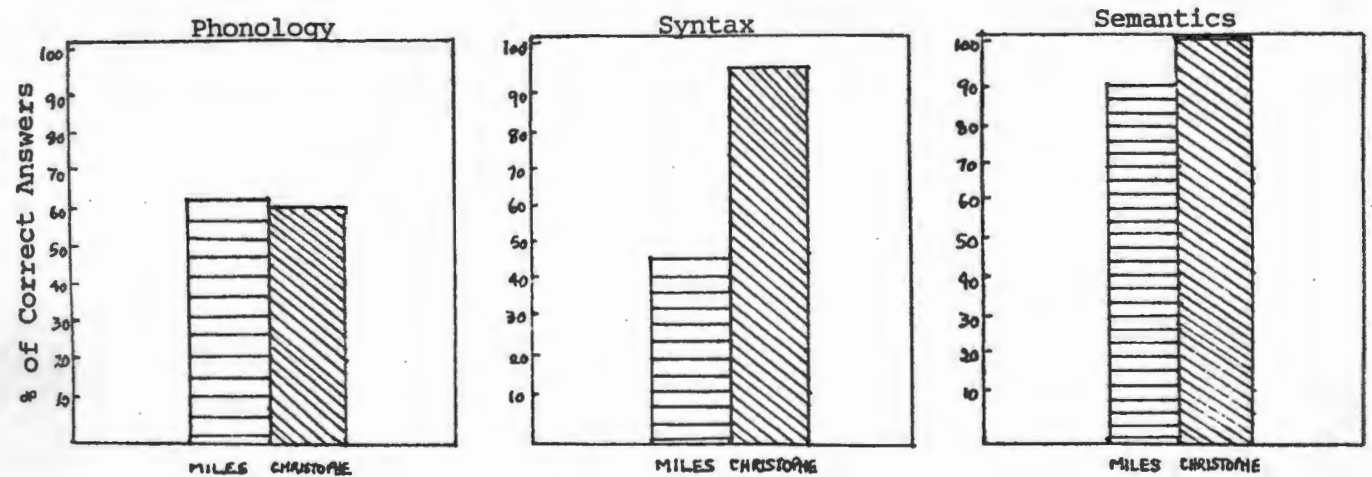


FIGURE 6-2 : Miles' and Christophe's Scores (First test done on each child)



	PHONOLOGY	SYNTAX	SEMANTICS
Kate	<p>Task: Yes/No response to items of French - (familiar) mixed with unfamiliar items of German, Russian, Spanish, English pronunciation/intonation</p> <p>57.5% Some errors. Tended to repeat answers given on the first test. Failed to recognize English pronunciation and intonation overlaid onto French. Unsure about correctness of French mixed with Spanish. Rejected German.</p>	<p>Task: Yes/No response to familiar/unfamiliar items of correct/incorrect French syntax (word order, etc.)</p> <p>56.5% Unsure - many errors. In spite of the use of well-known items at the time of English/French bilingualism, Kate failed to note errors of verb concord, omissions, reversals, completely jumbled word order, gender error, etc.</p>	<p>Task: Yes/No response to correct/incorrect verbal items accompanied by previously unseen picture</p> <p>100% Confident. Complete recognition of test items.</p>
Molly	<p>85% A few errors. Generally accurate in recognizing French/non-French sounds. The two errors involved English overlay onto French phonology (interference/transfer from English?).</p>	<p>82.5% Confident approach. Few errors. Noun/adjective reversal, gender error, omission of indefinite article. Retained good recognition of French syntax.</p>	<p>100% Confident. Complete recognition of test items.</p>
Miles	<p>63.75% Many errors. Allowed German, Russian and English sounds as French. Miles falls into a non-user category of French listening proficiency, i.e. unable to distinguish French phonology from other languages.</p>	<p>45% Very unsure - very many errors. Guessing strategy. No apparent recognition of French syntax. Failed to recognize jumbled word order, omissions, faulty verb concord, incomplete negatives, etc.</p>	<p>90% Excited - surprised, strong recognition of test items with picture cue. Initial unsureness about two items gave way to error-free final test.</p>
Christophe	<p>60% Surprisingly high number of errors. Allowed, with some hesitation, Spanish, Russian and English phonology (not German), incomplete phenemicization? Adult tester - therefore may be "adult" words? Influence of English-speaking milieu?</p>	<p>95% Confident approach. Almost no errors. Knew what was correct French and what was not (laughed at mistakes). One error of type commonly made by 6-year-old native speaker (verb concord).</p>	<p>100% Completely confident. Complete recognition of test items.</p>

FIGURE 6-3

Recognition Test: Tabular Summary of Results

(1980) General Assessment Scale, Miles would count as a "non-user" of French phonology, as far as the results of this test show. As a non-user, he "may not even recognize with certainty which language is being used" (p. 134).

Miles adopted a "yes" guessing strategy, particularly on the first and third attempts at the test (90% "yes"/95% "yes"). On the second and fourth repetitions, he threw in a few more "nos", thereby scoring somewhat higher, probably by chance. The only sentence which he consistently rejected over the four repetitions was "Est-ce que tu vas à l'escuela manana?"<sup>(3)</sup> Miles volunteered the comment that there seemed to be "three sounds that were different : the 'z' [sic] sound gave it away". He remembered the word "école" and knew it to be the correct word in the context, not "escuela". This lends support to Baddeley's claim of sense over sound, in that Miles was looking for meaning, but he also shows a consciousness of the appropriate sound to accompany that meaning.

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(3) Underlined sentences are incorrect.

Overall, Miles' recognition of French phonology was not significant enough on this test to come to any conclusions, other than to say that there is definite evidence of forgetting. The conversation taped in 1980, when he was 6-years-old (Appendix 11) reveals that Miles was conscious of French phonology at that time. In an attempt to use the French word "bazar" (as in "faire ou mettre le bazar") in an English context, he incorrectly adds a "d" in the pronunciation - "bazard", as though it followed the same pronunciation rule as the French "hazard" [azar]. This shows an underlying ability to apply phonology rules in both English and French. Over the two-year interval, however, his competence in French phonology has become less clear.

- (b) Christophe's result, on a single test, was surprising. Unfamiliarity with the test may have caused his relatively low score in phonology. As a native French speaker, however, one could assume that by age 6, he would instantly identify non-French sounds and intonation. Unlike Miles, who used random guessing, Christophe appeared to actively discriminate, hesitating over some sounds, and finally deciding that they might indeed be French. It was as if he decided that the

unfamiliarity of the foreign vocabulary items might mean that they were adult words he had not yet encountered. He hesitated, but accepted English pronunciation and intonation of French sentences, possibly because of the influence of hearing English spoken around him. Another possibility is that the process by which the child singles out certain sounds as the only distinctive ones in a language ". . . is far from complete at the age of six" (Croft, 1972, p. 23).

This point of view is explored by Templin, et al. (1957) leading them to the conclusion that the average 6-year-old is still far from having mastered many basic details of the spoken form of his language. Christophe's uncertain responses could be due to this incomplete process of phonemicization. The evidence from a single test is equivocal; however, there is a strong suggestion that exposure to a second language in early childhood results in a loosening of constraints or flexibility over what is phonologically permissible in a particular language.

- (c) Kate did not show very accurate recognition of correct French phonology. Although she was more decisive in her answers than Miles and Christophe,

she initially did not demonstrate much greater competence. As she repeated the tests, she showed an improvement in recognition, which could be attributed to remembering (60%, 65%, 70%, 75%).

Her answers were rather consistent on the whole (80% same-response over the four tests). She did not appear to be making a conscious effort to discriminate after the first test, showing a perseveration strategy. Since she received no feedback, it was as if she thought "this is my answer and I'm sticking to it!".

Kate correctly recognized that the German, Russian, and eventually the Spanish items were not French sounds; however, she was unable to identify the erroneous English pronunciation and intonation of French, for example, the English [kwestjn] instead of the French pronunciation [kestjɔ̃]. Since she understood what the sentence meant, she seemed to ignore the pronunciation. This is interesting, because in Niger, Molly, Kate and Miles used to amuse themselves by speaking French with an English accent, as though to map one phonological system onto another was somehow ridiculous. Ervin-Tripp (1976) noted the same phenomenon in

young children learning French as a second language. They had

" . . . a strong sense of the appropriate system in speech, and did not recognize, or correct, proper French names if they were anglicized"  
(p.203).

In Kate's case, phonology may well have been forgotten through the pre- and post-active interference of her first language, rendering her insensitive to such nuances.

- (d) Molly approached the test with a confident manner, which indicated a surer sense of remembering the sound system of French. Like her sister, she was rather consistent in her answers (80% same-response rate), although her scores fluctuated slightly (75%, 90%, 85%, 90%), showing better performance on the same-day repetition. Like Kate, Molly was unable to recognize English pronunciation and intonation superimposed onto French. In general, though, Molly showed a markedly more accurate recognition of phonology than the other children. She responded without hesitation, and behaved as though she found the test easy. Active remembering seems to be indicated in Molly's case.

6.1.3.2 Syntax

- (a) Miles said after completing the syntax section, "This is very difficult : I'm just guessing". His guessing strategy was random "yes"/"no" at first, but by the final test, he responded "yes" throughout. He appeared to retain no recognition of French syntax at all. His scores reflect this (40%, 45%, 45%, 50%). For example, he was unable to decide which sentence was correct, where both had the same constituents but one had jumbled word order. Since both of these sentences contained the word "une fessée" (a smack on the bottom) which Miles recognized, he seemed to conclude that they were both acceptable French sentences. He was unable to comply with the instruction to focus on usage, so he concentrated on the meaning of isolated words. Miles professes not to have 'known' much French grammar when he was 7 (see language autobiography) and indeed, there do appear to be some limits in the grammatical rules used by children of that age (see Ervin-Tripp, 1973). Whether or not Miles consciously knew the rules of French syntax, he was certainly proficient at producing well-formed French sentences at age 7, and his grammatical errors then were only of the type common to native-

speaking children of his age-level (e.g. errors in irregular verb tenses, comparatives using the wrong linking word, etc.<sup>(4)</sup>). If he jumbled sentence structure at that time, he did it consciously, as a joke.<sup>(5)</sup> Miles' inability to discriminate between well- and ill-formed French sentences in the recognition test point to forgetting, although it might be as a result of memory limitations at the time of encoding. Further consideration of this will be given in the final chapter.

- (b) Christophe showed a definite knowledge of what was acceptable or unacceptable French. He showed that a 6-year-old, who knew the language, would quickly reject obvious reversals in word order, also showing sensitivity to gender errors and omissions. His only slip was "Asseyez-toi ici" (for "assieds-toi ici"), a common mistake of French 6-year-olds, according to Williams. There is a dramatic difference between Miles' and Christophe's knowledge of French grammar; it

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(4) In the conversation taped with Miles when he was 6, he used the erroneous English forms "she sented" and "I'm the most best at it"; he also used the French "une" and "un" forms interchangeably : "une estrade - un estrade".

(5) In the conversation (supra) he enjoyed jumbling syllables as in "le flabado - le lavabo - le kagabo".

seems as Miles progressed in his knowledge of English and Afrikaans grammar, he reversed in his former competence in French.

- (c) Kate was hesitant in responding to old and novel items of French syntax. She showed less consistency in her answers than on phonology (60% same response over the four tests). She disclosed that "There were one or two things I wasn't sure about, so I said 'yes'." She did, in fact, use a "yes" guessing strategy of 5 to 2. She sometimes delayed answering until the next sentence was upon her, particularly on the first test, but still on the fourth test. She increased her score over the four tests (35%, 55%, 65%, 70%), yet she appeared unsure even after four repetitions about items of word order, verb concord, gender and omission of article. In short, while Kate showed signs of residual knowledge of French usage, she experienced difficulty in retrieving that knowledge. Whether this can be called forgetting or retrieval failure bears further discussion at a later stage in this study.
- (d) Molly approached the syntax section with the same assurance as for the phonology test. She explained

her slight hesitation in the second repetition thus : "I'm trying to remember. I'm not sure if it's correct grammar, and I don't want to say it wrong." In spite of this monitoring, she maintained the same response 80% of the time, and her scores remained rather steady (75%, 85%, 85%, 85%). Molly's errors involved word reversal, wrong gender and omission of the indefinite article. Compared to Christophe, Molly's knowledge of French syntax was incomplete, but more conscious; however, she retained a greater familiarity with the rules than Kate or Miles in the testing situation.

#### 6.1.3.3 Semantics

- (a) Miles : The use of pictures from daily life as a cue (people of all ages engaged in different activities) evoked a definite residue of French comprehension in Miles. Paivio (1971) has employed such highly concrete pictorial materials in recognition tests in which subjects are required to verify the truth or falsity of a sentence ". . . against a picture depicting events that may or may not correspond to those suggested by a stimulus sentence" (p. 20). He confirms the usefulness of this technique, and certainly, in this recognition

test, the combination of picture and word produced a remarkable flood of recognition.

The relationship between memory for verbal material, imagery and age, has been discussed in Chapter Three, and there was no doubt that when Miles was presented with two conflicting statements in French about a picture, he had little difficulty in deciding which statement to reject. After making an occasional error in the first two tests, he was 100% accurate by the fourth repetition, although he had received no feedback from which to make corrections. For the first time, the real possibility arose that deactivation of French might have occurred in Miles, rather than total forgetting. He did not need any outside confirmation that he could still comprehend French when stimulated by a pictorial cue.

He wanted to explain to us how he knew the truth or falsity of the sentences, so after some comments, we prompted him to give a picture-by-picture account (see Appendix 8). The key to his understanding was clear in some instances : he used cognates such as "contente" (Question 4) to reason that if the woman depicted was crying, she could not be happy. In other instances, he was hard put to explain how he understood. In Question 2, which

used the picture cue of people raising their arms, the choice was between "Les gens baissent les mains" or "les gens lèvent les mains". Although he had identified the correct sentence on the last three repetitions, he was not sure why he had made the choice. He began: "'Lève' sounds like 'put up'. I don't know." Unsatisfied with this, he used his 9-year-old cognitive skills to analyse words learned at a younger age, as though to explain to himself how 'he knows': he hit on "'Baisse!". That's the keyword! 'Baisse'. The base of something, so that means their arms would be down." In a clearer indication of remembering, he tried to explain his understanding of "cou" (neck). "'Cou' . . . where does that come from? Doesn't that mean 'head'? I don't know about that one." The implication that "cou" was originally encoded under a 'parts of the body' category is plain. Miles' comments give a brief glimpse of the complex remembering process, raising more questions than they answer. His own feeling of NOT knowing was challenged by his re-exposure to meaningful French.

- (b) Christophe, as a native French-speaker, found no difficulty in recognizing true/false distinctions in his own language.

- (c) Kate had no trouble completing the semantic test (100% throughout) and was as elated as Miles to find her memory so clearly stimulated. In the phonology and syntax sections, she had responded uncertainly, as though having to repeat the task might mean that she had done badly and needed to correct her mistakes - an understandable reaction. In the semantic section, however, she expressed certainty that she had completed the task well. She was aware that guessing was not enough : she had to know.
- (d) Molly was equally at ease with the semantic recognition task. Like Kate, she scored 100% on all four repetitions, and appeared to have retained excellent comprehension of French when it concerned concrete language and familiar subjects.

#### 6.1.4 Some Tentative Conclusions

##### 6.1.4.1 Feeling of knowing

The children's feeling of knowing was not altogether reliable. Miles, in particular, was unaware of an underlying residue of comprehension of spoken French. This points to the unreliability of

metamemory in young children, discussed in Chapter Four. While Hart (1965) may be right that FOK experiences are relatively accurate indicators of what is in memory, this does not necessarily apply to a young child of Miles' age. Molly and Kate showed a better ability to evaluate their own memory performance, but even at age 13, they were by no means unerring in their prediction of what they had remembered or forgotten.

#### 6.1.4.2 Sound, syntax or sense in long-term memory?

There was inevitably some overlap between syntactic, phonological and semantic considerations in the test items, even though the children were asked to focus primarily on one or the other. That having been said, they found the semantic task by far the easiest. My narrow data base precludes generalizing, but there are signs that sense was retained over sound in the recognition test, particularly when the sense is placed in a context. The inappropriate non-French sounds in the phonology section did not strike Kate, Miles and Christophe, and to a lesser extent Molly, nearly as forcibly as the nonsensical French meanings. Kate, Miles and Christophe, in particular, showed a lack of confidence over what was and what was not

permitted in the French sound system. As for syntax, in Niger, Kate and Miles had often heard the 'old' sentences presented in this section, yet two years later, they were largely unable to recognize them. Molly and Christophe recognized errors in syntax with a much greater degree of accuracy than the other two children. In Christophe's case, this appeared to be a largely unconscious process. Molly demonstrated more of a conscious effort to discriminate. Her retention of syntactic knowledge of French raised some questions relating to experience and individual learning-and-forgetting patterns, which will be discussed in the next section. The 'first-learned, last-forgotten' aspect will be considered in the final chapter.

#### 6.1.5 Some Questions Raised by the Results

The discrepancy between Molly's and Kate's scores was striking enough to warrant further investigation. In phonology, Molly scored 17,5% higher than Kate over the four tests; in syntax, she scored an average of 25% higher. Since the twins' French in Niger had been on a par, generally, some difference in encoding or some interim interference was suggested. Analysis of the twins' school marks in

French during their second year of exposure revealed that Kate scored fairly high throughout the year, except for her final mark, just before leaving school, which showed a 25% drop. Molly's final mark in French showed a sudden rise of 20% over her mid-year French mark. This high score had put her at the top of her class, over 27 mostly native French-speaking pupils. Molly's teacher had expressed concern to the class that a foreigner should score higher than French children in their own language.

Molly's attitude towards French after the first set of recognition tests reveals none of this. "I like French; it reminds me of all the good times I had in Niger", she said. Either she is showing selective memory, or she may be experiencing what Festinger (1957) calls 'cognitive dissonance'. He cites experimental research (1964) on the unexpected effects of inadequate reward. If a person exerts a good deal of effort to reach an objective, which turns out to be useless or not of the expected value, there is a strong tendency for the person to raise the value of the goal.<sup>(6)</sup> Festinger suggests that

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(6) See Elliot Aronson and Judson Mills' (1959) "The Effect of Severity of Initiation for Liking for a Group".

"organisms may not only like and value things for which they have worked very hard, but also that they are likely to remember them better" (p.527).

Despite Molly's achievement in mastering French, she was not rewarded at school, and her competence in French was abruptly rendered useless when she moved to an English-speaking country. To reduce the imbalance of these two dissonant perceptions, she may have chosen to raise the value of French in her mind. Molly's language autobiography reveals a much stronger intent to remember on her part than on Kate's (see Chapter Four, Fig. 4-2, page 130) for a comparison of their stated 'intent to remember'). At a glance, this hypothesis would appear to encourage an educational policy of Dickensian unkindness as a way of enhancing memory. Obviously this is not so. Motivated forgetting would be an equally understandable reaction in Molly's case. The 'cognitive dissonance' theory is merely an attempt to explain how the twins could have forgotten French at a different rate, if indeed this was so.

I devised a more far-reaching test, therefore, to explore whether Molly and Kate would continue to show this marked difference in their active production of French. A more peripheral interest

was to test Miles, using the same stimulus materials, to find out whether he could actively recall any French.

## 6.2 Recall Test

A recall test requires the subject to actively volunteer information, rather than passively assent or dissent to items; for this reason it is thought to be more demanding than a recognition test.

The issue of recognition versus recall is raised by Piaget and Inhelder (1969) who see the two as fundamentally different types of memory behaviour : recognition is related to action-schemes, or habits, while recall consists of evoking an item in its absence by means of an image-memory, Obviously there are relationships between the two, involving gradual steps from one to the other. My recall test, like the recognition test, was designed to test phonology, syntax, and semantics. The format, however, was much broader, including listening, reading, writing and speaking skills, in order to elicit a wide range of language and to thoroughly test the children's areas of competence (see Appendix 7 for the test).

### 6.2.1 Subjects : Biographic Data

Several months passed before Williams and I administered the recall test to Molly, Kate and Miles. By this time, Kate and Molly were 13½ and Miles was approaching 10. In the interim, the children had not been exposed to French, nor did they get any feedback concerning the recognition test. They did not know they would be retested. Molly and Kate were about to relearn French at school instead of Xhosa. Miles continued to learn Afrikaans as a subject at school.

### 6.2.2 Method

#### 6.2.2.1 Stimulus materials

The emphasis of the testing materials was on concrete language in meaningful communicative tasks. The materials were both structured, e.g. "Change this story into the past tense" or unstructured, e.g. "What happened to Miles?" The tasks were varied to avoid boredom, since the test took about an hour to complete. The children acted out school-room commands, read aloud from a textbook, tried to write an excuse note to the teacher and to talk about a cartoon dog. Cartoons, a tape-recorder,

pencil and paper were used. Some of the stimulus materials were pre-recorded on tape. The children's answers were written, acted out or recorded on a second tape-recorder.

#### 6.2.2.2 Procedure

The test was conducted by Williams and the author in the home environment. Before starting the test, the children were put at ease; we tried to conduct the test in as natural a manner as possible. While it is true that any testing situation is different from a real-life communicative environment, it is also true that the children were accustomed to some tension when using French. Submersion in a French-medium school had made the children, particularly the girls, familiar with being 'tested' on a daily basis. Apart from initial words of reassurance, there was no feedback. After we had given brief instructions concerning the demands of the task, we gave no further information. Miles attempted the recall test on two separate occasions with a 10-day interval to ensure that he had been tested to his maximum competence.

### 6.2.2.3 Additional data

Molly and Kate furnished comments on the test after it was over, and gave an estimate of how well they would do at relearning French.

### 6.2.3 Results and Discussion

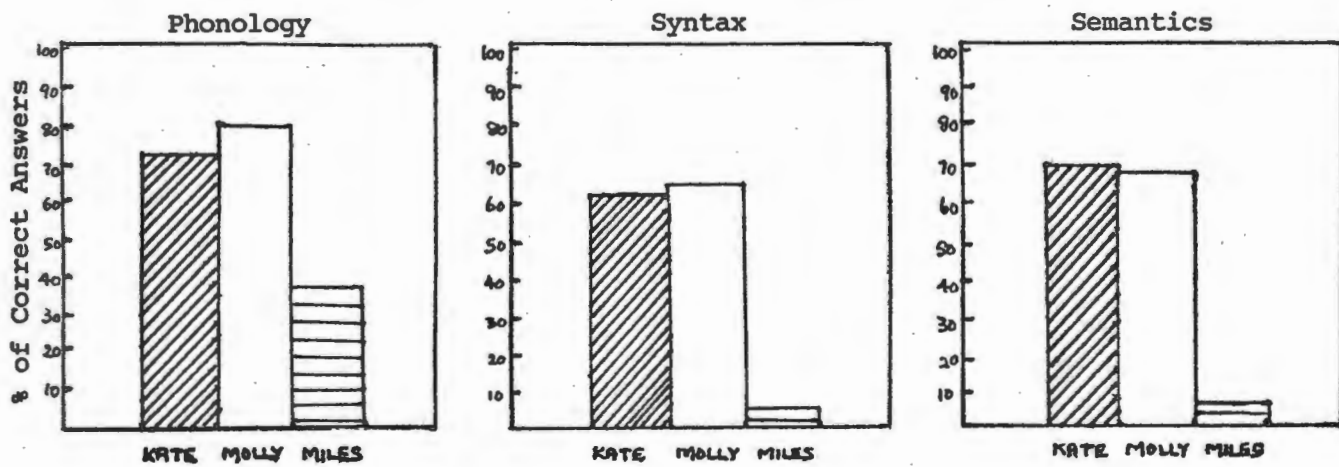
The results of the recall test are shown in Figures 6-4 and 6-5 (pages 224 and 225 respectively).

Before discussing these results, it must be stressed that this was a pilot study and was exploratory in nature. The statistical results are indicative rather than conclusive, since such a small sample was used and there were many uncontrolled personal variables, which tend to be heightened in memory over long periods (Howe, 1970). To observe the results of such variables was part of the purpose of this test : why one child might retain second language proficiency in a different degree to another child cannot be explained solely in terms of memory mechanisms. A carefully controlled test might have produced more objective research data, but for the purposes of this investigation, a broader, more random sample of natural language data was sought.

The scoring of the test was both criterion-and

RECALL TEST  
RESULTS

FIGURE 6-4



Phonology				Syntax				Semantics			
Listening	Reading	Writing	Speaking	Listening	Reading	Writing	Speaking	Listening	Reading	Writing	Speaking
<p>Task: Discrimination between minimal pairs</p> <p>Reduced ability to discriminate between minimal pairs (60% error) as heard "ciseau" for "six oeufs"</p>	<p>Task: Read aloud</p> <p>Reading ability relatively unimpaired. Some blurring of vowel sounds. Monitoring - corrected several errors; zero rules overgeneralised; no liaison.</p>	<p>Task: Dictation - (Phonemic, not orthographic test)</p> <p>A few phonemic errors, generally quite accurate. One error of English interference - other-wise developmental.</p>	<p>Task: Repeating French phrases for phonemic contrast</p> <p>Good ability to make distinctions between similar sounding words. Retained [ʁ]. Incomprehension hindered by loss of fluency in language.</p>	<p>Task: Discrimination between number and gender</p> <p>Some loss - 40% error on number task. Gender distinction better.</p>	<p>Task: Change gender, number &amp; tense (picture cues)</p> <p>Disliked task; showed poor recall of French usage patterns. Could not conjugate verb in past or future tense.</p>	<p>Task: Change passage into past tense (verbs)</p> <p>Definite loss. High error in verbal forms - auxiliary verb errors &amp; in inflection. Some overgeneralisation. Phonological rather than syntactic encoding?</p>	<p>Task: Respond to picture cues</p> <p>High loss of vocabulary items made syntactic patterns difficult to observe. Errors of preposition, auxiliary verb, gender.</p>	<p>Task: Act out spoken commands</p> <p>Good recall. 10% error.</p>	<p>Task: Comprehension - give gist of passage</p> <p>Excellent comprehension skills. Clear understanding of subtleties of text.</p>	<p>Task: Write a note of excuse to teacher</p> <p>Enjoyed task. Meaning came through, though evidence of phonological encoding with semantic aspects of words.</p>	<p>Task: Describe series of cartoon pictures</p> <p>Considerable loss of fluency. Speech halting, error-laden, loss of vocabulary, syntactic forms inhibited expression.</p>
<p>Task: Discrimination between minimal pairs (60% error)</p> <p>Considerably reduced ability to discriminate between minimal pairs (80% error) (these most familiar looking picture - impulsive style).</p>	<p>No significant interlingual errors - few developmental ones. Some blurring of vowel sounds.</p>	<p>Found dictation "easy". Almost no errors.</p>	<p>Slight loss of discrimination between similar vowel sounds. Intonation patterns were intact on test items.</p>	<p>Shows signs of recall, eg intelligent guessing on past tense formation - present. Could not form future tense.</p>	<p>Loss of syntactic ability; recognizable attempts at past tense forms. Phonological encoding evident.</p>	<p>Loss of syntactic ability; recognizable attempts at past tense forms. Phonological encoding evident.</p>	<p>Seemed to feel limited by structured nature of test. Loss of vocabulary. Errors of preposition, gender, verb auxiliary.</p>	<p>Good recall. 10% error.</p>	<p>Good comprehension skills. Some lack of attention to nuances of detail.</p>	<p>Did not like task. Intended meaning came through, but grammatical structures inadequate to express complexity of meaning.</p>	<p>Scrambled constrained by test structure. Loss of fluency; speech came in short bursts. Errors of word order, tense, verb conjugation. Avoidance.</p>
<p>Task: Guessing? second to point symbolically (10% error).</p> <p>Shovel definite recall - pending conscious effort to remember correct pronunciation; zero interlingual errors (Africanisms [ɹ], vowel sounds); many developmental errors.</p>	<p>Definite recall. Some English interference (eg "card" for "cates"). Some developmental errors [ɹ] for [ʁ].</p>	<p>Retained vowel French [ʁ] - lost ability to make distinctions between different, but similar, vowel sounds.</p>	<p>No active recall (random guessing).</p>	<p>No active recall.</p>	<p>Unable to attempt task.</p>	<p>No active recall.</p>	<p>No active recall.</p>	<p>Using computers, made some wild guesses at meaning.</p>	<p>Unable to complete task.</p>	<p>No active recall.</p>	

Figure 6-5

Kate

Molly

Miles

normative-referenced : criterion-referenced in that I was interested in discovering how well each child would manage the language tasks, which presumably would have been within their capabilities as fluent, above average French speakers in a French-medium school two years before; normative-referenced in that I was concerned with how the children would score in relation to each other, particularly between the twins' active recall of French. I will first look at what was recalled by the three children in the areas of phonology, syntax and semantics.

#### 6.2.3.1 Phonology

- (a) Kate recalled French phonology with relative ease and accuracy. She was asked to listen, to discriminate by pointing to the right picture, to read aloud, to write a dictation (scored only on phonemic representation, not orthography) and to imitate spoken sentences. She showed no appreciable loss in pronunciation ability over the 2½ year interval; monitoring was evident as she corrected her tendency to pronounce the French word-final 's'. There were occasional vowel errors - [o] for [ø] and a slight blurring in the pronunciation of certain vowels - [lui] for [lyi]. Kate made a few intra-lingual errors, over-

generalizing a rule or omitting one (such as the liaison between word-final consonants and word-initial vowels). On the whole, the French sound system had remained distinct and separate from English interference in her long-term memory.

(b) Molly showed no substantial loss in her recall of French pronunciation either. She monitored less closely, showing a more impulsive style, which seemed to cause mistakes in listening discrimination. She herself realized that she made almost no errors on the dictation : "I've done so many in French; it was easy".<sup>(7)</sup> In reading, she omitted liaisons, blurred some vowel sounds, and once forgot the 's' final omission rule. In general, her retention of phonology was almost unimpaired, as far as this test showed.

(c) Miles performed the phonology tasks with many errors, but he showed a surprising residue of competence. He made an obvious, painstaking effort to recall the pronunciation of the language. With the cues of the printed page, pictures and the spoken voice, he was able to retrieve some

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(7) See Appendix 2 for Molly's comments after the recall test.

active recall of French pronunciation, upon which he had formerly prided himself. An analysis of his reading aloud and dictation are included in Appendix 9. The French uvular [R] was generally retained although an Afrikaans [r] interferes in the beginning. During the conversation we recorded in 1980 (Appendix 11), I asked him what was the difference between reading English and French, to which he replied that in French ". . . you don't pronounce the 's' . . . sometimes at the finish of words, sometimes you don't pronounce the 't', 'p' and those sort of things." Two-and-a-half years later, he is unsure when to sound word-final consonants. At times, he incorrectly omits a word-final VCV syllable; at other times he incorrectly sounds a word-final consonant (e.g. [trɔp ptit̩] for [trɔ pt̩]). Correct omitting occurred 50% more than incorrect omitting, showing underlying retention of that particular rule.

Interlingual transfer from Afrikaans was evident. However, the majority of errors on Miles' second attempt at the task exhibited more intralingual than interlingual errors. That is, he appeared to be reconstructing interim pronunciation rules, in the same way as when learning French for the first time (see analysis in Appendix 9). The

long-term retention of French phonology, albeit error-ridden, may be attributed either to Miles' conscious effort to master the pronunciation at the time of encoding, or to the 'first-learned, last-forgotten' principle, or to the fact that Miles was merely reflecting the learning pattern of a younger child, who possibly retains sound over sense in long-term memory. Ervin-Tripp (1973b) is of the opinion that "attention to phonological units is temporarily enhanced analytically by the acquisition of reading" (p.285)<sup>(8)</sup> (see Appendix 11). Whatever the case, there was definite evidence that the phonological structure of the French language had resisted the forgetting process in Miles' memory on a recall test.

#### 6.2.3.2 Syntax

- (a) Kate's recall of syntax was marked by considerable erosion. At the time of testing, she showed limited control over French grammatical structures which she had known well two-and-a-half years previously. While intensive exposure to a second language had ostensibly improved her ability to

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(8) Miles speaks of learning "new syllables" on reading cards in the conversation recorded at age 6 (see Appendix 11).

analyze syntactic structures in English, as it did with Molly (see language autobiographies and MLAT tests), Kate retained only a limited ability to apply this knowledge to produce grammatical French. In her working knowledge of French syntax there is a lack of specificity : singular possessives are over-generalized with plural nouns, gender markers are ignored or used randomly, and prepositions are misused in an apparent regression to an earlier stage of linguistic competence. This backsliding is particularly noticeable in the area of verb forms. Kate revealed errors of tense, number, and used the incorrect auxiliary verb. She may have encoded some verb forms according to their phonological and semantic aspects, but not the syntactic aspect. On different occasions, she wrote :

<u>Incorrect form</u>		<u>Intended form?</u>
"J'avez invités"	for	"j'avais invité"
"On avez dancés"	for	"on avait dansé"
"Nous avez dinons"	for	"nous avons diné".

"Avez" and "avais" are interchangeable phonologically: Kate appears to have over-generalized "avez" for use as a past tense auxiliary. Other instances of phonological versus grammatical class encoding are in evidence, although more data is needed before this could be a conclusion.

Kate did not seem to be using the simple, unelaborated code of an early learner; on the contrary, she attempted grammatically complex forms which she misconstrued.

- (b) Molly exhibited a similar loss of productive ability in the area of syntax. She also applied gender articles randomly, overapplied half-remembered rules, and used singular and plural pronouns erroneously. She made many errors in verb forms, although her effort to construct correct syntax showed a qualitative difference to Kate's which is not statistically evident, and which I will comment on in Section 6.2.4 of this chapter.
- (c) Miles showed no active recall of French syntax. The positive statistical indication of recall in Figure 6-4 derives from random guessing on a cued listening test for syntax. In his MLAT test, although facing a task which was too complex for his cognitive level, Miles nevertheless showed some knowledge of English syntax, scoring 30% on a task designed for adults. Any such knowledge of French syntax, as far as the tests showed, was beyond conscious retrieval in his long-term memory. Further testing would be needed to confirm this conclusion.

6.2.3.3 Semantics

- (a) Kate demonstrated a resourcefulness and effort over remembering which did not match her actual performance. She recalled the meaning of French most effectively on the cued tests involving listening and reading skills. The more productive skills of written and spoken French yielded more limited and error-ridden results; although Kate showed evidence of a creative construction process on the letter-writing task, it differed from a learner's letter in the complexity of the meaning she attempted to convey, with its correspondingly complex structure :

"S'il vous plait m'excuse pour ne pas vous donne mon devoir de mathématiques mais mon chein aimé mangé le papier et il ne serat pas que certé mon devoir."

Intended meaning :

"Please excuse me for not having given you my mathematics homework, but my beloved dog ate the paper and he did not know (?) that it was (?) my homework."

Once again, the encoding of phonological with semantic aspects of words was apparent : "serat" for "saurait" (or "savait"?); "certé" for "c'était".

In her best performance within the semantic section, Kate demonstrated a clear understanding of the nuances of the story she read, and offered an accurate summary in English.

- (b) Molly appeared to feel somewhat limited by the test structure as she attempted to recall meaningful French. Her writing showed the same tendency as Kate's to convey relatively complex meaning through inadequate grammatical structures :

"Le reson que je n'a pas faire ma devoirs est parce que j'etais malade pour l'apremidi mais je n'a pas malade maintenant."

Intended meaning :

"The reason for not doing my homework is that I was ill during the afternoon, though I am not ill now."

Molly understood the general outline of the story task but missed some of the detail. Generally, the data was inadequate to form any firm conclusions on the underlying competence in semantic recall on any of the children, so I hesitate to comment further, except to say that Molly's post-test behaviour underlined the restrictive nature of any testing situation when

attempting to elicit meaningful language (see Section 6.2.4 of this chapter).

- (c) Miles (see Figure 6-3, page 203) was only able to produce one or two isolated words in his effort to recall French semantic forms. He did, however, show a vestige of understanding of the French story, using cognates and a somewhat inaccurate reconstructive guessing strategy to piece the meaning together. For all practical purposes, though, Miles was unable, within the limits of the testing situation, to produce any meaningful items of French. He was returned to the state of being an infant, that is, unable to speak (Latin 'in-fans' - not speaking).

#### 6.2.4 Some Tentative Conclusions

My tentative hypothesis that Molly would retain greater active recall of French due to affective factors was not supported by the results of the recall test. Statistically, there was very little difference between the twins' scores (see Figure 6-4, page 224). Molly was marginally more accurate in recalling French phonology and syntax than Kate, but marginally less proficient in her semantic recall.

A qualitative difference, noted in 6.2.3.2, is apparent between the twins' syntactic recall. While both of their answers may be statistically counted as an error, Molly's errors are closer to the correct form than Kate's. For example, in a tense-changing exercise, Molly changes "le monsieur berche", into "hier il berchée" which is incorrect but attempts a past tense construction. Kate changes the same phrase into "hier, il berchent" (3rd person plural, present tense). Other such examples serve as evidence that there may be a difference in the twins' syntactic recall. Certainly the test cannot be considered as a representative sample of what remains in their long-term memory.

Following the recall test, Molly continued to speak French for the rest of the day, insisting that the family speak in French during mealtimes. Kate showed no interest in doing the same.

Cruttenden remarks (1974) that any experiment performed with children can produce restrictions on their competence, which are not present in more

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(9) Derived from tests by Jean Berko (1958) who uses a nonsense word such as "berche" to test whether a child can apply a rule on tense markings to an unfamiliar word (see p. 299). The sentence in English is "the man 'berches'; yesterday he . . .".

natural situations. Obviously, the real test of recall will be when Molly and Kate find themselves in the situation of being re-immersed in a French environment.

Both girls, after the recall test, expressed guarded optimism over their ability to relearn French.

Kate said :

"If I'm going to start to learn French, then I think I'll do well. But these tests make me feel disappointed, because I can't remember as much as I thought I could."

Molly said :

"I'd like to be able to learn French again, but I don't think I'll be able to learn again through school - I learn more through experience."

These intuitions point to the strong effect of attitudinal and affective factors which surround language learning and forgetting. As a postscript, the twins started to learn French again after the recall test. In an undocumented report, their French teacher, after three weeks of French classes, spontaneously reported that Molly appeared to 'know' more French than Kate. At the end of the first term however, there was only a 5% difference

in their marks (Molly 91% and Kate 86%). Molly may not actually have more competence than Kate, but she wants to prove more strongly than Kate that she still has some competence.

Pit Corder (1981) points out the main pitfall of testing memory in children :

"The learner . . . will place limitations upon the data . . . by selecting from his actual repertoire, where possible, only those aspects of knowledge, which rightly or wrongly, he has most confidence in . . . Except in situations of real communicative need, . . . the learner will play safe. He will not reveal his hand." (pp.59-60).

In order to expose more of the memory and metamemory of the three children in my study, they were encouraged to tell their own story about learning and forgetting French : their language autobiographies follow.

CHAPTER SEVEN7. LANGUAGE AUTOBIOGRAPHERIES7.1 Preface

The observable, testable aspects of remembering and forgetting a second language are an inadequate reflection of what Molly, Kate and Miles retain in their minds of French. The language for them is not merely a set of sounds and elements, built up into correct meanings, but includes all the attendant moments of frustration and anxiety, the delight of discovery, in short, the experience of living through a language. Kate's memory of the phrase "Elle m'embête!" is inextricably woven into the fabric of her early experience of conflict with a seatmate; I would guess that without the contextual memory, the phrase would have no relevance or retrievability from long-term storage. Thus, the relationship between the children and the context in which they experienced the French language is inseparable in memory, although it is clearly possible to retain the language without having the context of learning physically present.

The language autobiographies which follow provide what

Corder (1981) calls "institutional data" to supplement textual data. The children spoke without the constraints of a testing situation, in a natural way, providing another aspect to the data on learning and forgetting, and facilitating our understanding of the process.

When looking at these autobiographies, the reader inevitably feels like a juror trying to assess the accuracy of a witness' testimony concerning some long-past event. I do not think these reports need to be verified objectively; they stand on their own merits as a subjective interpretation of the children's experience, to balance the relatively objective description and interpretation of the outside observer. Obviously these autobiographies are incomplete and selective, and the remembrances are not in chronological order. Miles shows a tendency to telescope time in his memory, for example, when he asserts that he learned French in a week, or maybe two.

There is, as Wingfield (1979) notes, a predisposition to impose a subjective pattern on our experience in order to give it meaning. This offers not only an anchor for retaining information but also allows the kind of vivid detail in recalling isolated incidents,

which draws from other learning or experience. Thus the recall of the process of learning and forgetting French will inevitably be 'biased' by the children's personal perspective, which cannot be verified as such.

7.2 Kate (13 years old)

Q. Can you remember the first French you heard?

A. Yes, the first real French I heard, I suppose - um in the States you taught me things like "la main" - . . . but the first real French I heard was on the way to Niger when we dropped off in France, remember? And I absolutely couldn't believe that I was going to be able to understand any of what they were saying 'cos it was so confusing; and I remember that you ordered us "lait de grenadine" at a restaurant and that was nice. It was the first thing I really learned 'cos the other things - "le main" and "le pied" - they came and went. Sometimes I could remember them and sometimes I couldn't. But I knew that . . . It was the first real word that wasn't foot, hand and all the normal things, and I was very proud of it!

Q. Can you remember what happened when you first got to Niger?

A. I don't remember if I went to French lessons . . . I think I did a couple of weeks before school . . . I didn't learn much until I started those French lessons and I started learning out of those "Nanou and Tinou" books and "Valérie et Daniel".

Q. Can you remember what you learned?

A. Oh yes, I can remember it off by heart :

"Cette petite fille s'appelle Nanou  
Ce petit garçon s'appelle Tinou",

and :

"Valérie joue avec Daniel.  
Daniel joue avec Valérie.  
Joue Daniel!  
Joue Valérie!"

and :

"Une poule sur un mur  
Qui picote du pain dur,  
Picoti! Picota!  
Lève la queue et puis s'en va!"

There, that's the first things I learned out of that book, but I didn't like it. It was a bit difficult but it was also so babyish, and it was probably why that book got a bit destroyed, because we disliked it so much.

Q. Were those books useful to you?

A. Oh yes, I learned a lot from them. Not really vocabulary, but how to pronounce things. How to pronounce letters - especially with the help of Mr Ngo. Without him I don't think I would have gotten very far. He was so encouraging.

Q. Can you remember your first day at school?

A. Yes . . . I could understand more than I always made out - it was the first day. I could make out a couple of words. Luckily my teacher spoke a bit of English. I remember the first essay I wrote for her. It was on "Myself". That's always what you get. . . , and I wrote it all in English and she translated part of it for me, except for certain words like "diving". I just couldn't remember what it was . . . , so I just put "swimming lessons" and I was so cross 'cos I could easily swim . . . , but I couldn't think of the word in French for diving, so I put swimming instead. I didn't want the teacher to think that I was a hopeless swimmer. I wanted her to think the most of me that she could, because I was so far behind everyone else. I remember once the awful time when that stupid boy put my pens up

that tree. Ah! That was awful! And I didn't know how to tell that I hadn't lost my pens and she had no right to be cross at me . . ., so in the end I just dragged her over to the tree and pointed at it . . ., and so she had to get a ladder and get it down.

Q. Did it take you a long time before you could explain something like that to your teacher? Did it feel like a long time?

A. It felt like a long time. It actually wasn't. It was about a month till I could explain things and talk a bit. I remember I didn't at all get along with my seatmate at first, and so you told me to say "Elle m'embête!". Remember that?

Q. So did you tell your teacher that?

A. In the end I didn't, because she started to be nicer and in the end she was my best friend. So I never ended up telling the teacher that, because I am not a tattletale. I don't like telling teachers, so I just bore it for a few more weeks.

Q. Did the other kids include you in their games?

A. No, not really. Well, some of them did. Actually, it was more the boys than the girls who included me with their games. They were so catty! They treated me like I was an absolute dope, 'cos I couldn't speak their language. But the boys all treated me . . . . [trails off].

Q. What sort of games did you play?

A. Oh, you know, the kinds where you sing songs and go round in rings, and clapping games . . . , with balls and everything . . . , and we played "Elastique". . . That game taught me how to say the days of the week and the months of the year, because of the chants.

Q. Do you remember doing a lot of chants?

A. Er, yes, 'cos we did a lot of jump-roping and the game "Elastique" was totally chants and that was what most people played. It was an easy way to learn! I remember Mr Ngo in vain tried to teach us the days of the week. He was so surprised when - all of a sudden like that - we knew them!

Q. How long did it take before you could really explain to somebody what you needed?

A. I think I could get along reasonably well, I could say pretty much anything I wanted to, in three months.

Q. Do you remember the first time you went to play with a French-speaking kid at her house?

A. I remember the first real person I went over to were the Thomas'. It was so embarrassing the first time, 'cos I could understand perfectly well what they were saying but I couldn't say anything back! It was terribly embarrassing!

Q. How did you get over your embarrassment?

A. I didn't. That was the problem. The whole time I sat there being embarrassed. , Oh, actually we started playing some of the games we played at school, so I got along because of that . . . It was so hard, I remember.

Q. When did you start feeling good about learning French?

A. Well . . . , when I wanted to learn it. When I made a friend. 'Cos then I had to communicate. Then I wanted to be able to talk to her . . .

That was probably what stopped me being friends with her first off 'cos she was so nice, but I was so slow at understanding what she was trying [sic], she was impatient and she just used to flare out and say things.

Q. Can you remember the first French you learned, apart from that textbook stuff?

A. Yes! Something I learned from the teacher. She told me to say this whenever I didn't understand. "Je ne comprends pas." That was the first proper French that somebody taught me besides out of the books.

Q. Can you remember the other first things you learned?

A. Songs. I learned a lot of songs.

Q. Songs were easier to learn than speaking?

A. Yes, they were much easier . . . I usually could get the meaning out of the song . . . by the music itself and then by the attitude people were in when they sang it and that sort of thing, and I could work out some of the words, so it was

easier . . . Most of the songs we learned had a bit of play acting to go with them, and there was this lovely teacher . . .; she was French Canadian teacher who taught us music, and I could sort of read music, and she used to give us pieces to work out and I was always the first finished, so that encouraged me to go on trying to learn for her.

Q. Did you find it hard to do maths in French?

A. Um, yes, at first I really did. What I found harder was when I got back, trying to do maths not in French, because I really learned most maths in French. But it was very difficult to learn maths 'cos I really didn't like it in French, I remember . . .

Q. Can you remember in what circumstances you felt you really could express yourself like the other kids?

A. That is a difficult question! I'll have to think about it. Well, I was about as good as anyone else in geography 'cos when I went there it was the first year that they started geography, so nobody else had any idea what was going on either!

- Q. I'm talking about your ability to keep up in conversation . . . You suddenly get to a point where you feel people are listening to you because you are saying something they want to hear.
- A. The first time I did that . . . ? Well, when somebody asked me to tell them about the States, 'cos I knew more about it than anybody else and people couldn't say "That's wrong!". So I was encouraged.
- Q. Was this in geography?
- A. Yes it was actually . . . I told the class a bit about the States.
- Q. How long do you think you'd been there when that happened?
- A. I don't know. About four or five months. At the most it was seven months.
- Q. Do you remember any strategies you used for learning French?
- A. Well, as far as vocabulary's concerned, I wrote things down.

Q. What did you write?

A. Well, just words that I had learnt that day, and just look them over and try and remember them. I used to write down them and their meanings. I didn't really think about strategies, I just did it . . . I used to bring some words home and Mr Ngo would tell me what they meant and then I could usually remember them . . . Some words I used to use in totally the wrong places, because they sounded like an English word, and so I thought they were that word . . . Some of them were, some of them weren't. And a word that interested me, that sounded interesting, or one that looked interesting with an accent on it or something, I used to want to know what it meant . . . , or ones with the cidilla on the bottom of the 'c'.

Q. In play situations, what strategies did you use to get people to listen to you and pay attention to you?

A. Well, the first year I didn't talk much, I used to just be quiet. The second year I was more confident and I just used to tap people on the shoulder and shout "Hey you, I'm talking to you!".

Or I'd start a story about something interesting or something scary and that usually got people's attention, or something horrible that had happened to someone I know, because everybody likes hearing stories about that sort of thing. But it is was just something like - um - "Do you want to play a game of something or other?", I used to shout at them until they heard me . . . But it made people irritated, I must admit. They'd say, "You don't have to shout! After all, I'm standing next to you!".

- Q. If you were given a choice between playing with French-speaking children or English-speaking children . . . ?
- A. In Niger? French-speaking! Because, for one, I felt special among the French children. And anyway the English children there weren't exactly to my liking. I didn't like them. There were so few English-speakers, that there wasn't much choice. There were so many French kids and Nigeriens who spoke French. I must mention that neither of my friends were French. They were Nigerienne and from Tunisie.
- Q. How do you feel your French was when you left Niger?

A. I felt I was bilingual in French when I left it. I was about as bilingual as people could get . . . . Jolly nearly as bilingual as anyone could get. I was pretty proud of myself, because it was jolly difficult at first.

Q. Do you remember ever thinking in French?

A. Oh yes! That was my problem, I told you, when we first came to South Africa, I couldn't learn maths in English, I could only do it in French. And English grammar, I kept doing it in the French way.

Q. Could you tell jokes in French?

A. Oh yes! I could tell jokes . . . . At the end of the first year I didn't understand jokes at all but at the end of the second year I could tell jokes and I could understand them. Yes.

Q. Do you think you spoke grammatical French, by the end of the two years?

A. Yes, I am sure I spoke grammatical French.

Q. How do you know?

A. Because I had grammar stuffed into my head. A lot of people were slightly surprised that I wasn't French but they said I didn't have a perfect French accent. People said that I had excellent grammar but I didn't have a perfect, perfect accent . . .

Q. How long were you in South Africa before you felt your French . . . do you remember feeling that your French was going?

A. Yes, definitely. Even in Pretoria I could feel it slipping away. Even after a month I couldn't remember as much. There was a girl who spoke a tiny bit of French, 'cos she did French in school. She was in Standard 10 and I just couldn't think of all the words that I used to know. They just were slipping by even one month afterwards. I tried to have a conversation with that girl and she knew almost more than I did . . . Of course, I remembered quite a bit but when it got to difficult words, I just couldn't remember them.

Q. What were difficult words?

A. Things like . . . the verb. It was a very

difficult verb. I just couldn't remember the tense that I should use for "je". It was supposed to be in the infinitif, I mean not the 'infinitif', this certain tense which I'd only just finished learning when I left, and it was a very difficult verb and I just couldn't remember what the "je" of it was. Actually, the grammar I lost pretty much last because it was so pounded into my head. Horrible grammar! Ugh!

Q. So what do you feel slipped away first?

A. Mostly my vocabulary, just normal words, and then I mean I could understand them if someone spoke to me, I knew what they meant, but I just couldn't remember them when it came my turn to say. I think I lost the grammar last but it's going too. It's gone pretty much. I don't remember much at all.

Q. You don't think you've forgotten how to pronounce words?

A. Oh no! Well some words. Most no. I know that double 'l' should pronounce like "fille" . . . I suppose my pronunciation went last, not the grammar, because it would be pretty difficult to

lose my pronunciation.

Q. Can you think of any ways you've tried to stop forgetting French?

A. Yeh. Molly and I, when we first got to Pretoria, during break, we just could sit together in the classroom and speak French . . ., just say any word we could think of, and the other one had to translate it. But we only did that about four times 'cos it was a waste of break for one, 'cos Justine was totally uninterested in it. We didn't really concentrate on it. I wanted to remember it but I couldn't be bothered to do anything about it, you know what I mean . . .? Sometimes I used to pick up the odd "Goût de Lire" and page through it and see if I could understand any of it, but not really, no.

Q. What is the most difficult thing about learning French?

A. Probably the grammar. That's probably why I remembered it. Because it was so difficult that I just had to know it exactly. I just had to learn it off by heart.

Q. What do you think was easiest about learning French?

A. Well, I could pick up vocabulary all right. I suppose pronunciation was pretty easy because I heard you beforehand, but I don't think it was the easiest. I think just picking up the words was the easiest.

Q. What sort of words?

A. Well, things like toilet. That was one of the first words I learned, because I had to go! And playing. The names of the games and that sort of thing. All the complicated words, words I wouldn't use at school, like vegetables and that sort of thing, beans and those, came later. Oh yes! And rulers, and pencils and books, that was easy enough, and teacher. All the words I'd use at school, I learned pretty quickly. All the expressions, including the rude ones; especially the rude ones! But I didn't use them, I must say, I didn't use the rude ones.

Q. Do you think French is a difficult language?

A. Yes, I do. I think it's difficult for people to

learn because of the masculine and feminine. How did you know what was masculine and what was feminine?

Q. How did you know?

A. In the end, just by the sound of it, whether it sounded right to say "le table", or didn't sound right. It was obviously "la table" . . .

Q. What makes French an easy language?

A. Well, I don't think anything can be really difficult or really easy. I think it depends mostly on whether you want to do it and on the teacher. If you don't want to learn French then it's obviously going to be jolly difficult, or if you've got the most awful teacher in the world, you're obviously not going to like the subject. But if you like your teacher and want to please her, or if you like the language, if you like the sound of it, you try much harder and it wouldn't be so difficult. So it depends on the person who's learning it as to whether it's difficult or easy.

Q. What do you think are the best circumstances for

learning a language then?

A. To be dumped in the way we were . . . , because otherwise people don't learn it.

Q. Why not?

A. Because they aren't being pushed as hard as we were. I mean, obviously they are being pushed to learn it in school to pass the exam, but no-one really cares . . . If you fail French you don't fail the year, so people don't really care. But you had to know French in Niger, you just had to know it . . . If you didn't know it, you were out of it completely. And that was the easiest way. If it hadn't been like that, I don't think I would have learned it as well as I did.

Q. Do you think you can learn a language in a classroom?

A. Not really, no. I doubt it. Because in a classroom you all speak English, right? And you're all struggling to speak French, and usually the teacher speaks English too, and then she'll probably end up explaining things in English to

you if you don't understand . . . I don't think people try as hard in classroom situations.

### 7.3 Molly (13 years old)

Q. Try to remember the first French you heard.

A. It was at the airport, when we first landed, I remember.

Q. Where?

A. In Niger. On the comment thing. They were saying all sorts of things. It was going "Ding Dong" and saying, well everything in French, and I kept asking Dad, "What does that mean?", 'cos I was a little bit frightened about learning French. And then I heard it when I was out in the streets. People were speaking French, but I didn't hear that like speaking French. I heard it like a blurr of voices . . . you never hear French . . . exactly word by word . . . When else did I hear it? Well, you told me a few words in the States but that's not really hearing it; you know, "nez", "bouche" and "main"

. . . .

Q. Can you remember what happened when you first got to Niger . . . , when you started to learn French in Niger?

A. With Mr Ngo [the tutor]. I remember we read the "Valérie Joue avec Daniel" - silly book. And at first I found it terribly difficult, but now when I think back it sounds so stupid. Anyway, we did the "Tinou and Nanou" and the "Valérie et Daniel", and Mr Ngo used to try and speak French to us just to get us accustomed to hearing it, to say what he wanted in French and then repeat it in English. And Amadou [cook] used to speak French to us very slowly and carefully like we were deaf or something but we still didn't understand what was going on. But Amadou was the one who really taught us to speak French, 'cos he would speak to us in the house in French, where Mr Ngo, if we didn't understand, he used to say it in English. But with Amadou we had to learn. And at school, the first few words I learned in French were "taille" and "pied" and "genou" because that's all the words for "Elastique" - and "sous bras".

Q. So can you remember what you learned from those first books?

A. I remember the books almost off by heart. They were so boring. What I mostly learned was the pronunciation of French, because before I sounded terrible, but I learned - "Cette petite fille appelle Nanou. Ce petit garçon appelle Tinou" - and how Tinou's real name was Yves and Nanou's real name was H  l  ne, and how about when they went to the beach and their house was named "Kerlourou". I remember that was a difficult one, but it was a Sub A book, so it wasn't interesting.

Q. Were those books useful to you?

A. In a way I suppose. Yes, well I remember in Niger - I can't do it any more - I used to repeat off the whole book like the "r  citations". Especially the "Val  rie" book. I remember I was a little bit glad that Mr Ngo had done the "Val  rie et Daniel" because my first one was Val  rie Lantagne, my first friend. I first of all just saw it [the name] written down, so I was glad I remembered how to pronounce it, because I felt a bit of a fool . . . The name was written on the desk; if I wanted to speak to anybody I could say "Val  rie". That's why I got to be such firm friends with her because I could say the word.

Q. Can you remember your first day at school?

A. Uhumm . . . I was terribly frightened! Mme Kraska came in and gave us an assigned seat, you see, so I was sitting on the other side of the room to Elizabeth [another English-speaker] and she started telling us all sorts of things and I was terribly frightened and very anxious. You know how you feel. I had butterflies in my stomach and I started to cry. So I had to get Elizabeth to come over to sit next to me, and explain word for word what was going on. And at break I stuck to Elizabeth as well. I stuck to her like glue the first few days. I didn't understand words like "est", you know, "is", and things like that. And Mme Kraska used to speak a little bit of English to me, but she didn't speak it very well. We did a grammar test . . . the first day, or at least I think it was a grammar test, I'm not sure, I never did it. And so we were all given a piece of paper and she "dictatéd" [French word, English past tense marker]. I don't know how to say it in English . . . dictated it to us, rather, and I didn't write anything down. And then I started to cry in the middle of the test, and so that's when Elizabeth had to come over and just tell me and

I wrote the words down in English . . .

Q. Did it take a long time before you could make your teacher understand you?

A. A long time before I could make her understand me. I could understand her before I could make her understand me. I remember it was about three or four months . . . I used to have to get Elizabeth to interpret to Mme Kraska. I used to jumble the French. I knew words here and there and I knew "is" and the main verbs but I just used to put them in the wrong tenses and get them completely mixed up; she didn't understand what I was saying, although she used to try. For a long time I used to have to get Elizabeth to come and say it in French - what I wanted, because she couldn't understand me.

Q. Did the other kids include you in their games?

A. At first, never. But as soon as I got to know them, they did. I remember I tried to play with some of the kids at school and they just sort of ignored me, so I played with Elizabeth. Towards the end [of the first year] they started including me in "Elastique" because I was the best in

"Elastique". I got up to the "sous bras". That's really how I learned the days of the week and the months of the year . . . When I remember them, I remember them in the same chanty voice we used to say them in to remember them . . . "janvier, février, mars, avril, mai, juin, juillet, août, septembre, octobre, novembre, décembre" - like that! I can even remember the steps we did them to. I can also remember "lundi, mardi, mercredi, jeudi, vendredi, samedi, dimanche". And I can't say them . . . any other way; at least I probably could but I do it better that way because that's how I remember them.

Q. What other games did you play?

A. We used to play "Les billes" - marbles . . . and we used to play "See see my playmate" which me and Kate taught the whole school . . ., and we used to play [singing] "Il était une reine, la reine Élizabeth . . .". We used to play those kind of games where you walked around the middle and somebody else had to choose someone else to be in the middle . . . and we used to play "La Chantal", oh! "La Chandelle" is what it was called.

Q. How long do you think it took you before you could really explain to somebody what you needed?

A. What I needed? The bare necessities . . . if I needed a rubber, I'd say - that! [pointing]. It took me three or four weeks, no, a month or two months to get up the courage to say anything, but it took me about three months to be able to actually talk, before anybody could understand what I was saying, anyway. I used to 'jumble talk' to Valérie and Elizabeth. I used to sometimes speak French to Elizabeth 'cos she used to speak French to me the whole time, you know, show off her French.

Q. You weren't allowed to speak English at school were you?

A. Well, no. Well, I was to Elizabeth at first . . . . but at break the teacher used to just separate us, you know, "you're not supposed to go with her, you're supposed to speak French", which meant I was totally deserted, because all the other children had their own friends. They wouldn't play with someone who didn't speak French. But it was all right in the end, 'cos they discovered how

good I was at playing "Elastique", especially Valérie. She used to say (I can't remember how you say it in French) . . . "I'm first with Molly, I'm first with Molly . . ."

Q. Do you remember the first time you went to play with a French-speaking kid?

A. It was definitely with the Thomas children. I remember we went there and we rode our bikes. And they had conferences and we had conferences to try and figure out what on earth each other was saying; and we had biscuits, those ones with the little strawberry inside, and all we did was ride up and down, ride up and down, stop and have a conference. I had a conference with Kate and they had a conference with each other . . . and every now and then, Jean, the boy, Jean-Marie, I think his name was, used to try and say something to us . . .

Q. Did you feel at ease with them?

A. No! I was so frightened! Not frightened, but a little bit afraid, and I kept tumbling off my bike because I wasn't paying any attention to where I was going; I was just trying to look at

them, you know, stare at them, wondering what they were thinking, wondering whether I should ask them something, or try and ask them something in French.

Q. Did you try?

A. Once, and I got it so mixed up they didn't understand what I said, and I didn't have the courage to ask anything else. And I tell you, I was so relieved when those cookies came, I stuffed myself.

Q. When did you start to feel good about learning French?

A. When I started to get top in the class. That's an easy one. When I started getting higher marks, I got more confidence, 'cos I based all my French on my school work. So if I got a low mark, I wouldn't speak French to anyone . . . I used to work really hard in Mr Ngo's class just learning it, my "récitation", and if I got a good mark, then I'd feel very confident and I used to actually go up and talk to people; but if I got a bad mark, I was in such a depressed mood I used to go and talk with Lara Ngo . . . We sometimes

used to go and hide behind the trees and talk together. You know, it's impossible not to talk to someone who speaks English!

Q. So when did you feel confident about being able . . . ?

A. Halfway through the first year at least. A little bit more, probably a little bit more. I didn't feel confident before then. I could speak it to get along but I didn't feel confident. Around halfway through the first year, I started speaking French well enough that I was getting high marks in my tests. That's why I'm so competitive now. It's a terrible problem, 'cos I always get down-in-the-mouth if someone beats me in class now . . . I don't like being behind, and I work, I really work to try and get ahead . . . That's all because of Niger . . . 'cos we were so competitive there, and I was always trying to get top just to prove to myself that I could speak French.

Q. Can you remember the first French you learned apart from the textbook stuff?

A. All my "Elastique" stuff; half of it isn't

actually French . . . , some of the things were  
- "Chinot", "Chintôt" - and that wasn't French.

Q. Can you remember the first proper French speaking  
you did?

A. Speaking? At break. We used to always speak.  
God, I'd have to. As long as I wasn't with Lara.  
And Nejla, I used to speak a lot with, and that  
was mostly about insects and birds. We used to  
frighten her because she hated them!

Q. What other things could you say early on?

A. Basics; how to get on in class and things like  
that. "Tu peux me donner une gomme?" Things  
like that. Or, "Can you lend me this?" 'Cos  
I'm not very good at remembering things! "J'ai  
oublié mon cahier de textes"; I knew all the  
words for all the games we used to play and I  
used to use them when I spoke. But I always used  
to get my verbs wrong in the beginning. I was  
as bad as Miles! "Je va"!

Q. Did you find it hard to do maths in French?

A. No . . . Maths has never been terribly difficult

for me . . . , French or not French . . . All we had to know was the numbers in French. I learned the numbers of maths pretty quickly, I mean, that's not difficult to learn. I don't think I'll forget it either. You can't forget numbers, at least I can't. I know I can count up to a hundred. I remember "Un million" and "Un milliard" and "mille", which is a thousand.

Q. When do you think you were at the point where kids actually listened to you? Paid attention to you?

A. I can't remember. I don't know. I have no idea. I can't remember at all when people started talking to me . . . probably late in the first year, but I can't remember. Probably when I started speaking French better. People, although they do listen, they're not so interested when they can't understand what's going on . . . When people try to explain something and they just sort of wave their hands about . . . , and try to get you to understand by doing that, it doesn't make any sense and you just lose interest.

Q. Can you remember anything you used to talk about that used to make the other kids interested?

- A. Uhuh. No. We used to go outside, we used to talk "Elastique" from the beginning to end . . . The only time we ever used to talk to anybody was to Nejla about nasty insects and beetles who were about to crawl into her hair, and she used to scream and run away! Nejla was very nice.
- Q. Can you remember any strategies you used when you were learning French?
- A. Yes. In the beginning, when I didn't understand anything, I burst into tears, and then Mme Kraska would come over to me and talk to me in English for once. I remember I used to do that quite often . . . 'cos I used to get so frustrated. And I used to use the words of the songs - any song I knew . . . if there was a word that I caught, I would try to think what song it was and what tense it was used in and then I'd try and remember what it meant, but I never used to use them to say . . . Understanding it, I used strategies, but not really for learning it. I remember once, I can't remember exactly what expression I used, but it was an expression in a song, . . . I interpreted it wrong and I said it to Nejla and she said "What?", 'cos it didn't make any sense at all. Finally I explained with

much hand movements . . . , she lost interest anyway . . . After than, I was too frightened to use words which I thought meant such and such but I wasn't sure.

Q. When you were playing with kids, what strategies did you use to get the kids to pay attention to you?

A. I used to stamp my foot. Stamp my foot really hard and everyone would look and then I'd say "It's my turn" or something like that; that was at the beginning, when I couldn't speak much French at all. I used to say "Va-lé-ri-a" [stressing each syllable]. I used this when I wanted to get her attention . . . I used to shout what I wanted.

Q. Did you ever tell stories to the kids?

A. Uh uh. You don't tell stories when you're trying to learn a language. Not in the beginning. Towards the end . . . I'm sure I did, but I don't remember doing so.

Q. If you were given a choice between playing with a French-speaking kid or an English-speaking kid

in Niger, which would you have chosen?

A. English. 'Cos they knew my language and I'd have been able to associate with them much better.

Q. Towards the end of the time in Niger, would you have chosen an English-speaking or a French?

A. Definitely! English! I wouldn't choose a French above an English, unless the English person was snottier! Then I'd choose the French. It's difficult to say - if I could choose them both, I'd probably end up going off with the English one, if I was allowed to.

Q. Do you remember ever thinking in French?

A. No. Yes, my times-tables, I couldn't say them in English at first. I learned them in French, so I just used to say them in my head in French.

Q. Is that the only time you can remember thinking in French?

A. Thinking in French? It's the only time I can remember. I probably did during tests and things like that. And I remember learning things

like that off by heart in French and thinking about them in French. And I used to say words in French. They used to pop out, but that's not thinking . . . [With] the grownups, I used to watch my language and speak English the whole time but to the girls, the girls and boys in Mr Ngo's class and to Mr Ngo, I always used to be saying French words 'cos I was used to saying them.

Q. Could you tell jokes in French?

A. I didn't know any.

Q. At the end of your time in Niger?

A. I didn't know any. We weren't the kind of children that used to. Nobody told any jokes. We used to just sort of muck about . . . we used to have games we played at break . . . One of my favourite games was kick the stone. That was towards the end when I didn't have any friends. But nobody else wanted to tell jokes, I mean, that just wasn't something done. Kate might have, but she had a different set of friends than me.

Q. So you didn't even hear jokes?

A. No, I don't know a single joke in French.

Q. Do you think you spoke grammatical French at the end of two years?

A. Yes.

Q. How do you know?

A. Because I used to get very high marks in my tests, and nobody used to correct me in the end. In the beginning, everyone was always coming up to me and saying "You said this wrong and you said this wrong, it's said like this". But in the end, nobody used to come up and correct me anymore so I just knew I spoke it properly.

Q. How long were you in South Africa before you felt your French was going?

A. I never used to think about it . . . Er, I felt it going after we'd been in Pretoria for about two or three months. I couldn't remember some of the things. I sometimes used to think about French, try and remember some of it . . . Every now and then, I used to speak to Kate in French and she used to get very irritated and not

speaking French 'cos she said "We're NOT French".

I could feel it going then, only about a month or two months after we got to Pretoria.

Q. What do you think started to slip away first?

A. The schoolwork. Like the maths, all the terms we used to use in maths. But what we used to play at break didn't slip away so quickly. Very simple French . . . , which we used to speak for break, stayed a long time. We never used to use very grammatical French out in the playground. What I learned in the class went away quite quickly, you know, the grammatical way . . . We used to say "on" all the time at break which means "one", where, if we said that in class we'd get yelled at. We used to have to say "je, tu, il, nous, vous, il". We weren't allowed to say "on". And now, whenever I want to say anything to Kate . . . if I'm on a French craze, I say "on".

Q. Do you think you've forgotten how to pronounce words?

A. Not that I know of . . . I can still read French; I don't think I've forgotten my pronunciation. Pronunciation isn't the kind of

thing you forget.

Q. Can you think of any strategies you've used to stop forgetting French?

A. I remember the other day I tried to do my timetable in French in my head, and I try and think them out in French as well as in English . . . , and I remember once when I was in Std 4, I tried to translate something from English into French . . . I did it . . . it wasn't exactly grammatical. The first time I tried, I tried from French to English which was very easy, but from English to French was harder, very hard in fact, because I'd already forgotten a lot of it.

Q. What's the most difficult thing about learning French?

A. The "le" and the "la" - the masculine and feminine - and the different accents, which way they go.

Q. What do you think was easiest about learning French?

A. There wasn't an easiest. Learning a language

doesn't have an easiest. Not for me anyway.  
This word means this and this word means this.

Q. Can you think of anything that was easy?

A. The words that sounded like English . . . Things that reminded you of something in English.

Q. Do you think French is a difficult language?

A. No . . . , languages are more or less the same. Some languages have very difficult pronunciation but I think French has a very easy pronunciation. I think it was quite an easy language to learn.

Q. Why do you think it was an easy language to learn?

A. It doesn't have many exceptions to the language. It's very set; you know if it happens to be an "er" verb, it will go like this, and if it happens to be a second verb, it will go like this, and there's not an exception . . . whereas in English, it's all mixed up.

Q. What do you think are the best circumstances for learning a language then?

A. Going to school, or going somewhere where you're just put into French, or where the person doesn't speak English so you've just got to learn it. I don't think though school is very good, or through someone who speaks English and says "this means this" - 'cos you forget it.

Q. So how do you think you do remember?

A. By being made to remember, like for tests. Like in Niger we did tests every Saturday, so we had to know it. And just saying things the whole time. Speaking it solid.

#### 7.4 Miles (9 years old)

Q. Can you remember how you started to learn French in Niger?

A. Yes, the first day they gave out some clay . . . , and they also gave us a little board to roll it on, so we made all sorts of things. Then when we were finished, the teacher would look at them all and she'd say "Good" to all of them . . . . That day, we all had our books and we had to draw a picture of a boy . . . , and the first time, it

was Jaffar, so that's how I got to know him  
best . . . .

Q. Can you remember what books you used at the  
beginning, when you started learning French?

A. "Oxford" - they had written on the back and they  
had big lines on them.

Q. The textbooks?

A. Yes, I can remember one, later on, not the first  
textbook . . . , my last textbook . . . was some-  
thing to do with "Chocoline" . . . We also read  
this one book, "Valérie and Daniel".

"Valérie joue avec Daniel.

Daniel joue avec Valérie.

Joue Valérie!

Joue Daniel! . . . "

Q. Was that book useful to you in learning French?

A. Yes. I learned all my basics from that . . .

Q. Did it take you a long time before your teacher  
could understand you?

A. No.

Q. What was her name?

A. Madame Oiseau. Mrs Bird, I remember that . . .  
[Her name was, in fact, Mme Aliot]. I only  
learned French in a week. One week and I could  
say the basic stuff. Two weeks and I could  
speak it with a French accent. Three weeks and  
I knew it all.

Q. Did it seem to be very easy, then, for you to  
learn French?

A. Easy to learn French? Well, it depends which  
way you look at it. Schoolboy French or the  
rest of the French, the big stuff . . . ?  
Schoolboy French, easy. But the other French,  
the fluent French, with the French accent, that  
took a little longer, maybe a month.

Q. Come on . . . ! Be serious! We got there in  
August, didn't we?

A. And by November I had learned it, I could speak  
French [in] maybe two months . . .

Q. When you say schoolboy French, what kind of French  
do you mean?

- A. Break-time stuff. "Hey, that's my 'gourde' you're playing with!" That sort of stuff.
- Q. How did you say that? Can you remember?
- A. No. Simple as that. I have forgotten everything except for "gourde" [water bottle].
- Q. How long before you could talk to your teacher, . . . like to say you couldn't understand?
- A. I could say, "I don't understand" in, what, three days, because I went to French lessons, and Mr Ngo, and he taught me how to say that. So if somebody said something to me and I didn't understand, I'd just say this word.
- Q. Whatever it was.
- A. Whatever it was. I can't remember a single word, I don't think . . .
- Q. Do you remember when you first started, did the kids used to play with you?
- A. We didn't really do things; we used to build châteaux that high . . . in the wet sand.

Q. What's a château?

A. A castle. All I can remember is, they used to say "Château! Château!", and then we'd run over and build a big castle . . .

Q. Can you remember some of the games? Did they have any songs with them?

A. No. There was one actually. Ferme la . . ., ferme la cheese or something. And the cheese would be in the middle and then they'd all thump on him! They'd do their warcry around him for three or four minutes and then they'd thump!

Q. Do you remember any songs you learned at the beginning?

A. No. I can only remember one poem.

Q. What's that?

A. "Une poule sur un mur,  
 Qui picote du pain dur.  
 Picoti! Picota!  
 Lève la queue et puis s'en va . . . "

Q. Did you ever sing any other songs?

A. No, except for the warcry! . . . No songs . . . ,  
I can't remember them, not a single one.

Q. Think.

A. Oh yes, there was one about the "cacahouete"  
about the peanuts. [Sings] "Pirouette!  
Cacahouete! S'est cassé et son papier".\*  
Something else, and then the chap climbed to the  
top of the roof and then he fell down, broke his  
nose.

Q. How do you say that, "broke his nose"?

A. I don't know. "Sa nose e gebreak . . . "

Q. Do you remember the first time you went to play  
with a French-speaking kid at his or her house?

A. The first time I remember was at Lionel's. He  
had all these little "Clickys" and firemen and we  
played in the swimming pool with them and I didn't  
want to swim. And his mother kept on saying I  
was cross or something.

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\*Original went "Il s'est cassé le bout du nez" ("he broke the  
end of his nose"). Miles retained intonation but lost some  
lexical items.

Q. Were you shy?

A. Yes, I was shy. And then Lionel came and said, "Hurry up Miles! I'm waiting for you." There was nobody else there, I remember.

Q. Can you remember if you could speak to him?

A. Yes, yes . . .

Q. When did you first know you could speak French, so that it made you feel good?

A. I never felt good about speaking French. Not really good about it. I know when I could speak it, when about three months were up . . .

Q. Why didn't you feel good about it?

A. You don't feel good about learning a language. You don't feel bad about it . . . I knew I could speak it, sure. Nothing else mattered . . .

Q. Did you find it hard to do maths in French?

A. No. It was easy work. I knew it all anyway, I had done it all in English - as long as I knew the French numbers.

Q. Did you learn any times-tables or anything in French?

A. All I learned was easy things, you know, two plus two, two plus three.

Q. Do you know how to say "two plus two" in French?

A. "Deux plus deux."

Q. Do you know how to say "Two take away two"?

A. -

Q. Do you remember when people really started to listen to you because they wanted to hear what you had to say?

A. Well, Amadou and . . . Idrissa started to really pay attention to me when I came in from school and they'd ask me "How was school?" So I'd say "Comme ci, comme ça . . ." and then they'd laugh.

Q. Do you remember making kids laugh at school sometime by things you said?

A. No, not really . . . I never knew any jokes in

French. Actually I do, I know it now in English. There was a donkey, and . . . [long joke follows].

Q. And could you tell that one in French?

A. Yes . . . , later on in the first year.

Q. Can you remember any strategies for learning French?

A. I listened carefully. That was it. I had to work harder than anyone else . . . , that's why I came top. I worked so hard at my French that I just zoomed above the rest . . .

Q. How did you work harder, in what way?

A. I never forgot my books . . . , I always used to do my homework . . .

Q. What strategies did you use to get the kids to pay attention to you?

A. "Hey you! Come here!" As long as you had a loud voice and they had good ears it was easy.

Q. You used to shout, huh?

A. No, if they were close you never used to shout  
. . . What was the point of shouting?

Q. If you were given a choice between playing with  
French-speaking children or English-speaking  
children in Niger, which would you choose?

A. At the time, I probably would have chosen English-  
speaking children, but these days I think I would  
have chosen French-speaking children.

Q. Why?

A. I find different languages more interesting. I  
don't know . . .

Q. When you were in Niger?

A. Then I would say an English-speaking kid . . .  
English was my home language and I was very proud  
of it and I still am . . .

Q. How do you feel your French was when you left  
Niger?

A. I didn't really think about that. I don't really know, because when I left, I wasn't really worried about that. I was happy and I was sad. I was excited as well. I can't really remember.

Q. Do you remember ever thinking in French?

A. Yes. Yes, in class . . . I've thought in French lots of times. When I first came to South Africa I mixed up the French sounds with the Afrikaans sounds. They were saying, "What are you talking about? That isn't right." Now, these days, when I'm trying to talk French, I mix up all the Afrikaans!

Q. Do you think you spoke grammatical French at the end of two years?

A. No . . . I didn't know how to write proper things. I didn't write in the right order, I didn't have capital letters, but then again I was only in first grade - Sub A.

Q. Why do you think you didn't have very good grammar?

A. . . . when you're young, you never have good grammar.

Q. Who told you that?

A. I sort of figured that out myself. Not when I was there, but afterwards . . . In fact, only January of last year, I was looking through my French books. I was appalled! No capital letters, no full stops, no commas, no punctuation whatsoever! My sentences took up a full page . . .

Q. When you looked at it last January, could you understand what you'd written?

A. No! All I knew was the punctuation was wrong.

Q. How long had you been in South Africa before you felt your French was going?

A. Three months. About as long as I'd taken to learn it, I got out of it; not beginning to lose it, when I lost it completely . . . When I was in Pretoria, I was bombarded with Afrikaans. Then after about a month, this girl H el ene [a French-speaker] came. She couldn't speak a word of English, so I had to translate for her. When she wrote out everything, then I'd read and I'd tell the teacher what it meant in English.

Really, I was teased a lot over that.

Q. Why?

A. H el ene was a girl. They used to tease me over that.

Q. So what do you think started to slip away first?

A. The accent. Then the words - no, then the grammar, then the words. I didn't do much grammar.

Q. When you say you lost your accent, what exactly do you mean?

A. . . . I started to say my "R's" wrong, then my "a's" started to slip away . . . it just died. I know it's still back there. It's buried deep in the ground!

Q. How do you know it's still back there?

A. I know how to read a lot of things. I still remember a lot of words.

Q. You do?

A. No, I don't exactly. I don't remember their meanings . . . It's hard to put it . . . Every time I read a word, I know how to pronounce it, but I don't know what it means; that's what I mean.

Q. Do bits of French ever come into your mind?

A. Yes. "Je ne sais pas" [testing item].

Q. Do any other words or phrases come into your mind?

A. No.

Q. Can you think of any ways you tried to stop forgetting French?

A. No, I didn't mind forgetting French . . . I don't mind if I've lost French. At the moment. Not until I need it. Then when I need it, then I'll learn it again.

Q. Can you remember what the most difficult thing was about learning French?

A. Yes. The pronunciation of words. My accent. I wanted to perfect my accent, you might even say.

I wanted to make it sound as much like the other boys as I could make it sound, and I think I succeeded.

Q. Do you think there was anything easy about learning French?

A. No. It's a tough job learning another language when you're five years old . . .

Q. What do you think the best circumstances are for learning a language?

A. The best circumstances, you be about five, six years old, about the age that I was . . . because then your memories have just developed; there's nothing to get all mixed up in there with. You won't have gotten memories from when you were three or anything. Your memories have only just developed, so you won't have all the other nonsense crammed in there . . .

Q. How do you think is the best way to learn?

A. Listening to other people. For children of the age that I was, listening to other people. For

grown-ups, it's a different story . . . I don't  
know for grown-ups. I think taking French  
lessons!

CHAPTER EIGHT8. CONCLUDING REMARKS

As stated in the Introduction, the integration of various sources, such as the experimental data in Chapter Six and the children's self-reports in Chapter Seven, was designed to give a more rounded view of the whole experience of learning and forgetting a second language. This data only provides a suggestion of what remains in the children's long-term memory for French; many more items, including more 'semantic' knowledge, may reside in their memories, which this investigation did not uncover. It is possible, however, to evaluate the language behaviour which did emerge in the course of this research, without precisely defining the limits or extent of the children's residual knowledge.

From the combination of source materials several points stand out, which help to answer the questions raised in Chapter One. The first of these was :

8.1 Can a Body of Linguistic Knowledge, Such as a Second Language, be Retained Over an Extended Period of Time Without the Opportunity of Rehearsal?

There is evidence to support the existence of residual

knowledge of French in the three children studied. What emerged, first from the recognition test, and later from the recall test and language autobiographies, was confirmation that some aspects or subskills of French still resided in the children's memories in varying degrees. The durability of the memory trace appeared to be based on a variety of factors which will be discussed in subsequent sections.

#### 8.1.1 'Remembrances' versus 'Memoria'

A framework to summarize the essence of what was retained is drawn up in Figure 8-1 (overleaf). It attempts to show the dual nature of memory for a second language, emphasizing certain distinctions, but recognizing the blurring of other distinctions. This schematic representation of forms of memory is obviously oversimplified and is not meant to comprise a unified theory, but rather to give a description of what was observed, or was suggested.

There was evidence from tests and self-reports that the children's language memory was strongly influenced by overlearning. Despite every indication that meaningful learning is more easily retained in long-term store than rote-learning, enough examples of rote-learning language were

<u>REMEMBRANCES</u> Episodic memory experiences with an autobiographic index		<u>MEMORIA</u> Habit memory without the experience of an autobiographic index	
<u>VOLUNTARY</u>	<u>INVOLUNTARY</u>	<u>VOLUNTARY</u> OR	<u>INVOLUNTARY</u>
<p>1. Recognition Searching for familiar-sounding utterances ("old" items) amongst unfamiliar ones ("novel" items).</p> <p>2. Recall, e.g. What was my teacher's name? Names of my first French books?</p> <p>3. Attempting reliving, e.g. the first time I heard French; my first day in the French school.</p>	<p>1. Recognition e.g. Miles recognizing "suce-pouce" from picture of boy sucking his thumb (Chapter Seven).</p> <p>2. Recall : free association, e.g. phrases with high emotional content - (Molly : ". . . parce qu'il fait l'idiot" (see Appendix 7)).</p> <p>3. Spontaneous reliving, e.g. "déjà-vu", images of the past in Niger.</p> <p>4. Induced recall : Hypnotic age regression (not tried)</p>	<p>1(a) Recall or reproduction of information in French e.g. data learned or "committed" to memory - times-tables, numbers, grammatical terminology.</p> <p>(b) Recall of formulaic strings or routines, e.g. "Je ne sais pas", "Je ne comprends pas" (see language autobiographies).</p> <p>2. Activation of habits, e.g. repetition of "Valérie et Daniel", poems, daily school vocabulary, word-lists.</p> <p>3. Images : e.g. e.g. conscious - visual cues, colours, shapes, etc.</p>	<p>1. Mechanical recall of information by association, e.g. "Oxford" on exercise book* - incidentally learned words, songs.</p> <p>2. Automatic repetition of habits, e.g. French pronunciation, intonation, e.g. days of week, months of the year.</p> <p>3. Images, e.g. visual stimuli.</p> <p>*Chapter Three, Note 7.</p>

FIGURE 8-1

Forms of Memory : One View

Adapted From : Reiff, R. and Scheerer, M. (1959).

given by the twins, in particular, and to a lesser extent by Miles, to warrant further investigation.

In an attempt to understand the phenomenon, let us return to Tulving's (1972) distinction between 'episodic' and 'semantic' memory,<sup>(1)</sup> which is related in part to the schematic representation in Figure 8-1. Tulving defines 'episodic' memory as memory for information involving temporally-dated episodes or events; that is, like Reiff and Scheerer's 'remembrances', such memory is closely related to an autobiographic index. Tulving's 'semantic' memory definition does not equate as closely with Reiff and Scheerer's notion of 'memoria', in that 'semantic' memory is seen to be wholly cognitively-based, whereas 'memoria' includes more of the motor response or habitual aspect of remembering. In qualifying their concept of 'memoria', Reiff and Scheerer do say that besides skills and habits, which are free of an autobiographic time-index, 'memoria' can include perception or thinking which show automatic habits. They say :

"Exercise automatizes methods of

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(1) See Chapter Three, Section 3.4.3.

problem-solving just as much as it does walking, speaking or writing. The place of these automations in the mental topography is the pre-conscious." (p.27).

Thus, the difference between the notions of 'semantic' memory and 'memoria' appears to be one of degree. Tulving's 'semantic' definition involves more conscious problem-solving than the 'memoria' definition of Reiff and Scheerer.

The long-term retention of overlearned verbal material is not adequately covered by the notion of 'semantic' memory. Taylor (1976) underscores this when he says,

"It is true that the multiplication table we memorize in one language can be 'automatically' recited only in that language,<sup>(2)</sup> but automatically reciting the multiplication table is more a motor response than a problem-solving activity." (p.245).

This appears to be the aspect of remembering that

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(2) Kate (language autobiography) : "What I found harder was when I got back, trying to do maths NOT in French, because I really learned most maths in French."

figures most prominently in the non-episodic type of remembering shown by the children. Such episodic tasks as asking for a rubber<sup>(3)</sup> seem to have been turned into habitual ones with no specific autobiographic index, by the routine nature of the question. Such strings can hardly be considered as cognitively-based any more.

Straus (1966) gives a phenomenological explanation for the habit/episodic memory dichotomy, which adds to our understanding :

"Human life evolves on two levels : on that of biological need and satisfaction in the circle of daily routine and on that of signal events, marked in the annals of curriculum vitae. Corresponding to the two levels of existence there are two modes of remembering and forgetting : one characterized by the familiar and the repeatable and the other by the new and unique." (p.73).

#### 8.1.2 Voluntary or Involuntary Remembering?

From the data elicited in testing and from the children's self-reports, remembrances involving

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(3) Molly (language autobiography) : "Tu peux me donner une gomme?"

personally-related information seemed to be reached by conscious effort, as when the children were asked to remember their first visit to a French-speaking family, or spontaneously, as in Kate's sudden recall of when a boy hid her pens up a tree. Thus, 'memoria' or habits can be said to be voluntary or involuntary : days of the week and months were consciously recalled by Molly, but she recited them with the speed and mechanical rhythm of an involuntary response. The voluntary/involuntary mechanism was exemplified by Molly when she said, "I'm not concentrating on what's being said; the answers pop out!" (see Appendix 1). Reiff and Scheerer say that:

"This holds regardless of how the material was acquired, be it by rote, or learning through understanding, 'organizing' or incidentally." (p.31).

The division between conscious (voluntary) and unconscious (involuntary) remembering is particularly apparent in the case of the younger child, Miles. When spontaneously recalling a song, he used the French word for "broke" - "s'est cassé (son papier)" but when asked to volunteer "he broke his nose" in French, he answered "Sa nose e gebreak" (attempting an Afrikaans construction) : the language was not

consciously available to him. On the whole, though, there is no clearcut division between the two distinctions in the kind of testing situation in which the children were placed, where even an unstructured interview involved some conscious effort to remember on their part. The voluntary/involuntary distinction is useful, for all that, particularly in a situation of trying to probe memory for a completely forgotten language.

To sum up, what was consciously retained in long-term memory was not so much 'semantic' knowledge but a mixture of 'episodic', experience-based language from the past, together with rote-learning, which included songs, chants, passages from books, texts and poems. Personal associations with a high emotional charge, visual images and early-learned items survived the 2½ year hiatus most successfully.

To turn to the second question raised in the introduction :

8.2 What Aspects of the Disused Language Were Most Completely Stored in the Brain, and What Aspect of Language Subskills Went First?

While it would be experimentally neat to discover a

similar remembering/forgetting pattern across the different testing conditions, this did not prove to be the case, so the answer to this question is - it depends.

#### 8.2.1 What was Retained Most or Least?

Miles showed little recognition of French phonology, but strong recognition of the semantic items in the recognition test. The position was reversed in the recall test; he showed virtually no productive recall of meaningful French, but was able to demonstrate residual proficiency in the French sound system.

Molly's results also varied between recognition and recall. She showed almost 20% better recognition of syntax than she was able to produce. The gap was significant in Kate's recognition and recall of syntax. The girls did not show this discrepancy in semantic proficiency, where they both dropped from perfect recognition to an equivalently lower degree of semantic recall.

The difference between the children's recognition and recall results may be explained by a number of factors, including age, personality and the context

and content of original learning; however, one of the most obvious reasons lies in the difference between receptive and productive language skills.

#### 8.2.2 Perception versus Production

Perception skills are cognitively less demanding than production skills. Piaget (1970) states that perceptive recognition mechanisms are present during the first few months of life, pointing to a more intuitive form of memory than active recall. Recognition and recall may be therefore fundamentally different tasks.

It has been confirmed by clinical neurologists (Albert and Obler, 1978) that there are two separate aspects of language relating to the perceptual and productive language systems. Some brain-damaged patients, with expressive or Broca's aphasia, have more difficulty with language production than with comprehension. Others, with receptive or Wernike's aphasia, have more difficulty with understanding than with speaking or writing.

Albert and Obler present the following hypothesis :

"The linguist might well consider that different grammars may describe the two systems. It is conceivable that the production-process-grammar and the perceptual process-grammar share only a deep semantic system, and that the linguistic mechanisms involved in processing speech for comprehension differ in form and/or type from those involved in processing meaning for language performance." (p. 220).

If this production process-grammar and perceptual process-grammar are to some degree independent of each other, then this would explain how impairment in comprehension could be less than in production, since the two might involve different encoding strategies. What these differences might involve is too complex an issue to be fully considered at this juncture; however, one obvious difference is that as in first language learning, comprehension skills precede production skills in second language learning, for which particular strategies such as guessing and inferencing meanings are heavily used. Being able to recognize words such as classroom commands, cognates and swear words<sup>(4)</sup> was initially

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(4) Kate (language autobiography) : "All the words I'd use at school, I learned pretty quickly . . . especially the rude ones! But . . . I didn't use the rude ones."

an important survival strategy, as well as a language-learning strategy, on the part of the children studied. As they developed a larger word-base in French, they relied less on guessing and inferencing strategies.

Miller's (1966) statement that "many psychologists prefer to speak of memory as something a person does rather than something a person has" (p.192) underscores the productive/receptive dichotomy; that is, the former depends on storage and active retrieval, whereas the latter depends only on successful storage.

To return to Leopold's (1939 - 1949) description of Hildegard's language proficiency a few weeks after returning to the U.S. from Germany, he observed that she could comprehend German but was hesitant to produce the language. Initially, this process of losing active recall could have been accelerated by affective factors, such as embarrassment over making errors; whatever the case, when the opportunity for rehearsal was removed, Hildegard's production deteriorated at a more rapid rate than did her perception of German. Oveido's children, cited in Chapter Five (Section 5.1.3), manifest the same language behaviour; so too did Miles, and to

a lesser extent, Molly and Kate.

### 8.2.3 First-Learned, Last-Forgotten?

Since comprehension skills precede production skills, the first-learned, last-forgotten hypothesis proposed by Cohen (in Chapter Five, Section 5.2) might contribute to an understanding of the durability of comprehension over production.

Even in active production, there was evidence of a 'first-learned, last-forgotten' pattern in the twins' recall (Miles' semantic recall is too negligible to warrant discussion). For example, both Kate and Molly generalized syntactic rules, showed English interference and a greatly reduced vocabulary base in their productive efforts; developmental language learning patterns also re-emerged.

The twins' effortless remembering of early word-lists (parts of the body, school vocabulary, etc.) - not to mention the earliest phrases used (e.g. "lait de grenadine"<sup>(5)</sup>) relates to the maxim of

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(5) See Kate's language autobiography.

T.H. White's, that "One sees things for the first time only once" (p. 118).

In other words, novel stimuli tend to be more memorable than familiar ones. While routine information-processing involves integrating material into the system of previously-held knowledge or experience, learning unfamiliar information seems to disturb that system, so that particular attention is paid to a new item. As words, such as second language vocabulary, become more familiar, they receive less deliberate attention. Leopold (1939-49) observed this phenomenon in Hildegard : as she understood more meanings of words, she cared only about the content of utterances, showing no objection to word changes. Leopold writes, "She had her attention drawn to essentials, to content, instead of form" (p. 188).

As the children in this study became more aware of French meanings, so the forms of the language became less important to them. Klein (1978) observed the same phenomenon in training individuals to perform complex tasks other than language learning, such as typing; that is, when some of the early 'steps' had been learned well enough that they did not require conscious awareness, they

seemed to be forgotten.

"It is suggested that once the rules are superseded, they are 'forgotten' rather than performed automatically",

says Klein.

"Ask a novice and skilled typists to remember which finger strikes a letter prior to moving a finger, and observe the effects on speed and accuracy." (p.144).

The implication that an individual who speaks a language well does so holistically is clear. After phonological, grammatical and semantic rules are well learned in a language, it becomes harder to perform them in isolation, out of context, in a testing situation.

#### 8.2.4 What Aspect of Language Skill Goes First?

In a reversal of the hypothesis in Section 8.2.3, the children forgot last-learned items first, despite their relative recency on the temporal-index. An example of such forgetting was provided by Miles, who over two trials, was completely unable to pronounce the French word "s'ennuye", even though he had learned it at school only two

weeks before leaving Niger.<sup>(6)</sup> Forgetting may be said in this case to have occurred in the reverse order to learning, since Miles had a clear recognition and recall of the first verb he learned ("jouer" - See Appendix 8).

Apart from an active loss of vocabulary, Molly and Kate showed most loss in their general grammatical proficiency, in particular, the specifics of gender, tense, case, etc. This corresponds with Cohen's (1975) last-learned, first-forgotten hypothesis (Section 5.2).

In general, the results of my tests do not bear out Haugan's (1956) conclusion that

" . . . a bilingual whose learning of one language stopped at the age of seven will rarely have a vocabulary beyond that of a seven-year-old, although his phonetic and grammatical skill may be unimpaired." (p.76).

While French phonology remains the least impaired productive skill in all three children, their grammatical proficiency appeared to decline

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(6) There are two date stamps above this word in his French reading book, showing exactly when he learned the word.

significantly in the girls, and to disappear altogether in Miles; which leads me to the third question of how much of this loss relates to cognitive and situational variables.

### 8.3 How Do Age and Manner of Acquisition of the Original Knowledge Affect What is Retained?

#### 8.3.1 Age of Second Language Acquisition

Cognitive maturation has been considered at length in Chapters Two and Four, as one of the central issues in learning and retrieval of second languages. Two main points emerge from my investigation :

- 8.3.1.1 That young children at the Piagetian pre-operational level appear to encode meaning in productive long-term memory largely on the basis of acoustic and orthographic similarities rather than association of meaning. In Miles' case his relatively error-free dictation, in which he was able to transcribe French almost as well as his older sisters on a phonemic level, shows evidence of acoustic and/or orthographic encoding. On the other hand, when he described his receptive recognition strategies (Appendix 8), he gave some evidence of clustering and categorizing vocabulary according to meaning

("cou" as a part of the body, "rouge" as a colour, etc.).

Generally, strategies of encoding language information into memory seem to change in a fairly predictable way as a function of age, proficiency and language task. Even older learners at an early stage of language learning go through a beginner's stage of acoustically-based clustering and orthographic similarities; however, after this stage has been completed, it seems that :

- 8.3.1.2 Older learners (which includes older children at the level of concrete operations by Piagetian standard) remember more because they pay more attention to deliberate memorizing, which is different from ordinary perceiving and remembering. Mnemonic strategies involve deliberately doing something at the time of encoding to facilitate later recall. Some of these strategies are not conscious, involving the encoding of elaborative retrieval cues linked with the language, while others are premeditated, such as rehearsing for a future testing situation. In addition, older children such as Molly and Kate remember more than their brother because their wider conceptual base (at the time of learning) enabled them to

relate and organize new knowledge better (see Chapter Four, Section 4.3.3).

The twin's residual knowledge of French syntax was in marked contrast to Miles' complete loss of proficiency in that area. Since syntactic relations are relations among concepts, it is understandable that a smaller knowledge base would mean less need for Miles to relate concepts, and hence, less awareness of grammatical structures.

This is not to say that a 5- to 7-year-old learner is unable to organize material for encoding. A child of this age seems to possess information about how to categorize (see Ornstein and Corsale, 1979); they merely do not seem to use this information when remembering is requested. In short, younger children do not have the same idea as older children of just what it means to remember, leaving us with the question of whether organization of a second language influences remembering by determining how it is stored, or whether it only influences retrieval. Whichever the case, more systematic storage on the part of the twins did seem to ensure better accessibility to the second language after a two year hiatus.

### 8.3.2 Manner of Learning

Having fully discussed such matters as natural ("street") acquisition versus formal (classroom) learning, along with the differences between immersion and submersion, in Chapter Two, this section will merely restate the importance of the formal/informal distinction in second language learning. It is not surprising that the more rigorous cognitive demands made on the twins at their French school facilitated their later recall of the French language. Miles, when learning French, was not required to perform so many language-related tasks as his sisters. Thus, the girls focused more on the cognitive academic aspects of language proficiency (CALP) which necessarily entailed a different organization of the language than basic interpersonal communication skills (BICS) (see Chapter Two, Section 2.2.1). The emphasis on visual stimuli in the classroom where Miles learned French, combined with a younger child's proclivity to rely heavily on non-verbal cues in memory tasks, favoured his recognition of verbal items with pictorial cues. This is not to say that young children are more adept than older ones at using visual cues, but that this is one area where a young child can use cues with almost equal

proficiency as older children.

#### 8.4 What Has Emerged About the Phenomenon of Memory and Forgetting, as They Relate to Language, From This Line of Questioning?

Several points remain to be made. The first concerns the very nature of the subject.

##### 8.4.1 What Is Forgetting?

8.4.1.1 The evidence from the tests and the twins' self-reports show that they have consciously left some French behind, but know that they could retrieve it if they had to. "I probably remember more than I think I remember" was Molly's comment (Appendix 2). Does this count as true forgetting, or as putting the language away in storage for future use? The girls' 'feeling of knowing' points to short-term memory failure rather than permanent forgetting.

8.4.1.2 A 'closer-to-the-threshold' form of memory failure is the temporary forgetting of a usually well known item, such as when the general outline is known but cannot be brought to mind instantly. Does this constitute true forgetting, or is it merely a momentary lapse, as in the 'tip of the

tongue' phenomenon?

8.4.1.3 The unwillingness to speak a language for political/ ideological reasons is a common occurrence in South Africa. Lanham (1978) cites observational evidence that rising socio-economic levels by so-called 'Coloureds' in 'English-speaking' cities often coincides with a shift from Afrikaans to English as the language of the home. Can disuse of a second language, or even a first language, due to such a sociolinguistic shift, be called true forgetting, or repression?

8.4.1.4 The issue is obviously more complex than it appears at first. One thing does appear to be sure : that forgetting, in a waking state at least, may be said to occur when knowledge of the original material is so far gone that there remains no certainty of ever having known it.

Perhaps the notion of forgetting is best summed up by Kruger (1979) :

"Forgetting something always means a bit of self-forgetting, because whatever falls away from me, means that a part of my relationship to the thing forgotten has fallen

away and does not exist any more."  
(p.100).

8.4.2 What Causes Forgetting to Occur in Long-Term Memory?  
(Does trace decay theory, interference or  
retrieval failure best account for forgetting?)

Let us briefly review these three theories and evaluate their usefulness.

8.4.2.1 Trace decay theory of forgetting would view the loss of second language skills as time-dependent; that is all memories, of no matter what type, decay passively. Interference theory would explain the loss in terms of earlier or later learned associations competing with disused second language. Retrieval failure holds that forgetting is no proof of loss of the memory trace; that the information may be present in memory but has become inaccessible or unavailable.

No single mechanism or model is sufficient to account for memory failure. While autonomous decay theory has generally been discredited as an explanation (see Jenkins and Dallenbach's sleep experiments, Figure 4-2, page 130), it is impossible to either prove or refute the theory that traces undergo gradual organic destruction.

One aspect of forgetting that trace decay theory does not explain concerns Ebbinghaus' 'curve of forgetting', which indicates that there is a sharp drop in remembering verbal material, followed by a gradual levelling off to a plateau. If decay of the memory trace did in fact take place, then logically, nothing at all would remain in very long-term memory, which is not the case.

8.4.2.2 Interference is a somewhat more helpful notion, when seeking to explain forgetting. Some interference in the form of either interpolated learning or previous knowledge of English is evident in all three children's test data. For example, in the recognition test, they all fail in varying degrees to recognize English intonation inappropriately overlaid onto French structures. In the recall test, the twins' spoken French revealed English word order and lexical borrowings; Miles, though unable to recall spoken French, showed transfer of Afrikaans vowel sounds and English phonology when reading French. Interference is incomplete as a theory, however, since it does not account for motivated forgetting, nor for the mechanism of attention.

8.4.2.3 Retrieval failure is partially related to interference theory in that the retrieval of information may be blocked by pre- or post-active interference, so that the to-be-recalled item becomes inaccessible. "The view that nothing is really or completely forgotten is basic for interference theory", say Bugelski (1979, p.323). While computer models of memory have tended to replace interference as a theory of learning and forgetting, such blocking effects cannot be entirely dismissed.

The findings of Penfield and Fromm, amongst others (see Chapter Five, Sections 5.4.1 and 5.4.4) suggest that the memory trace may undergo less direct changes than the children's test results indicate. Penfield, as previously mentioned, believes in the existence of permanent memory records, even when forgetting processes interfere with recall. The possible existence of French as an intact language system was hinted at by Miles, when he showed comprehension of French when cued with pictorial materials, even though his productive proficiency was quite insubstantial.

It is safe to conclude that permanent memory may exist, but it is not of much practical use to us. Unless we use some exhaustive probing techniques, or resort to the dubious use of memory-enhancing drugs or hypnotism, or we return to the context

of original learning to reactivate cues used on encoding, we are unlikely to be able to release substantial amounts of material from very long-term memory at will. Krueger (1979) concludes that an accurate memory would take as much time as the actual event which is remembered.

None of the theories discussed explain the inconsistencies in the rates of forgetting shown by the three children. Neisser's comment

"We have an intellectually impressive group of theories, but history offers little confidence that they will provide any meaningful insight into natural behaviour" (pp.11-12)

may be overly dismissive, but it does point to the main deficiency in theoretical models : how can real-life forgetting, such as the following example of Nida, be explained? Nida (1971) cites the case of a person who declines in second language ability even when continually exposed to it. Nida's rationale - that the reason for the decline is "a radical shift of interest" (p.64) - points to motivated forgetting or the affect of attitude, which is not explained by any model of memory.

#### 8.4.3 Affective Variables in Retention and Forgetting

The cognitive variable between the twins and their brother made a difference in recognition and recall a likely result. The difference between the twins was a less predictable result, since, as previously stated, identical twin subjects eliminate many variables that are found in unrelated subjects, or siblings. The affective variable is thus highlighted as a cause for their varying rates of forgetting.

It may be helpful when trying to understand the role of such affective variables to look at remembering as a personal response to the past. Sardello (1978) describes what is remembered as not the actual content of the past but something "insubstantial, immaterial, weightless, in short, strikingly different from the original . . . " (p. 146). Remembering differs from one individual to the next because of different personal packages of experience, or the accidents of a person's life history, which influences perception, retention and retrieval of information. Such variables cannot be measured, but only observed. Molly's intent to remember French does not come from integrative or instrumental motives, but more from a need to value

a prize won under duress. Kate did not exhibit the same need to reinforce her second language proficiency.

Apart from motivational factors, it appears from the results of my investigation that the amount of attention paid to the original learning of verbal material directly affected what was remembered. Something about the material, whether rote-learned or cognitively-based, attracted particular notice, so that the children spent more time or effort rehearsing and encoding attributes of the information.

In Chapter Two, the discussion of the effects of success and failure on performance pointed to the conclusion that motivation levels can change and have an effect on performance during the retention interval. In short, perceptual, attentional and rehearsal processes can and do show considerable variation between individuals.

#### 8.4.4 One Cause of Remembering

When inquiring why certain aspects of French remain in long-term memory, a traditional answer might be that a copy of the former trace, or a reactivated

trace is present in memory. In a case of real-world remembering, however, it makes more sense to say that individuals remember what is relevant to them. This explains why information that seems arbitrary and trivial to others is remembered by the individual for whom it is meaningful. Thus, long-term memory depends not so much on the depth of coding an item ( Craik and Tulving, 1972, Figure 3-2, page 115), but on the degree of attention paid to the item, so that remembering can be as unique as the individual's experience.

## 8.5 General Implications

### 8.5.1 The Unique and the General

An argument against such phenomenologically based study methods is the perceived restriction they impose on generalizing from the individual experience described. I do not conceive this research as a vehicle for producing facts or theory. Adelman and Walker (1975) refer to the aim of this type of research as "to construct reports which provide vicarious experience for their audience" (p. 230). Such understanding as this research has generated may be replicated by others who are concerned with the subject of forgetting a second language, in the

context of their own situations.

The experience of the children in this study is relatively unique; therefore, how is it possible to speak in general terms of their experience? Keen (1975) concludes, with Aristotle, that the general is in re - in particular things; that every event is and is not unique. While the parts may be different in the sense that individual perspectives of events are different, there are still some commonly shared items, in that we are focusing on the same aspect of life. For example, language acquisition, recognition and forgetting are all typical in that they are types of experiences shared by many. As such, they are typical in phenomenological study.

"We see in typical psychological phenomena exactly 'the general' as opposed to 'the particular'"

says Keen (p.4.).

The primary aim of this study has been to investigate very long-term memory for a disused language in three particular cases. From this study, it is hoped that those readers concerned

with teaching second or foreign<sup>(7)</sup> languages may gain some vicarious insights into the learning and forgetting processes which they encounter in their own lives.

#### 8.5.2 Pedagogical Implications

How can this investigation be of practical use to second language teachers/learners? What teaching implications arise from my results, and are there any techniques which might ensure or enhance very long-term retention of language? Before attempting to answer these questions, it must be reiterated that it is unrealistic to prescribe a specific teaching methodology for improved retention from these three case studies.

Not only is the data limited, but the infinite variety of possible acquisition contexts, individual differences, and task and training variables make it of little use to select a 'typical' second language learning situation, and a preferred teaching methodology which would apply to all circumstances. Instead of selecting a particular

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(7) Throughout this manuscript "second language" has been used as a blanket term. For a discussion of the second/foreign language distinction see H. Brown (1980, p.130).

situation, such as children in an immersion situation, or adults learning a foreign language, I will use a more general target group of second language learners, who, for various reasons, may have the prospect of limited opportunities for rehearsal, once the second language has been acquired. (8)

To the question - are there any special teaching techniques which will ensure long-term retention of a second language which is not used - the answer is probably no, as far as we know now. Despite Penfield's (1958) findings of 'permanent' memory during neurosurgical procedures, claims of stimulant drugs aiding retention (Wingfield, 1979) and of languages being revived under hypnosis (Campbell and Schumann, 1981), there is yet to be discovered a magical technique for remembering at will, or a cure-all for forgetting second language skills.

To the question - are there any techniques by which second language retention may be enhanced - the answer is possibly, yes. There is some evidence

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(8) An example of such a group would be students who go through secondary schooling in a world language, following which they return to their own speech communities (see Introduction).

from my tests and the children's self-reports that habit and episodic memories have survived the passage of time better than semantic memory (see Section 8.1.1). In particular, all three children showed long-term retention of early over-learned verbal material. Other sources (Garry and Kingsley, 1970) confirm that retention of language is improved and interference with other learning is reduced by overlearning or reciting in a fixed manner. However, remembering snatches of verse, early textbook learning, and flashes of language recall involving specific experiences from the past is of little use to the individual who wants to remember a language over a long period for use in new contexts for communicative purposes. The question arises, therefore, how could such habit and episodic memories be harnessed to improve techniques of learning and semantic memory for a language?

The key to long-term retention of a second language seems to depend on three factors (Wingfield, 1979) : first, it is important to attend to the material; second, to organize it; and, third, to rehearse it as much as possible. How can habit memory, in particular, be used to promote attention, organization and rehearsal of the language on encoding?

#### 8.5.2.1 Rote learning versus cognitive learning

The subject of memorizing in the classroom is a controversial one. The disagreement arises from a reaction by many teachers against the 'stimulus-response' approach to teaching languages, which can cause<sup>(9)</sup> an unhealthy reliance on rote-learning, chanting and drills, without the learner understanding or being able to use the language in different contexts for communicative purposes. The 'direct method' and cognitive approaches to second language teaching (Celce-Murcia and McIntosh, 1979) reject such memorizing techniques, emphasizing inductive learning and real communication. Thus, while some teachers see the use of memorizing as an aid to learning, opponents fear that the use of mnemonic strategies may result in effective retention without conceptual understanding.

There is no reason why memorizing and conceptual understanding may not work in harmony, according to the stage of learning. Gagné (1970) divides second language learning into two areas :

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(9) Such methods are commonly used in second language classrooms in South Africa (Kroes, 1978).

acquisition of skills - for example, the simplest types of learning such as discrimination between sounds - followed by more cognitive based learning. "Only when such early skills are mastered", says Gagné, ". . . is the student ready to progress to the later stages of language learning" (p. 265). Rivers (1968), who concurs that the second language learner should begin with an emphasis on acoustic work, suggests the early use of rote learned poems and rhymes to aid language acquisition, to which I would also add, television commercials, chants and other memorized strings, according to the age and background of the learner. <sup>(10)</sup> The ability to be able to produce such strings of a language, before being able to produce meaningful discourse, can have the effect not only of increasing the learners' self-confidence, but of showing them that they can control the way they learn and remember. <sup>(11)</sup>

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(10) Henning (1973) claims that it is easier for beginning learners to encode items on the basis of acoustic and orthographic similarities, rather than semantic ones. He suggests it might prove more helpful for learners at that level to discover "the difference between 'whether' and 'weather' rather than the distinction between 'whether' and 'if'" (p.194).

(11) See Molly's language autobiography.

#### 8.5.2.2 Mnemonic strategies

In general, mnemonic strategies are arbitrary, inappropriate for any other purpose than rote reproduction and only apply to a particular memory task (Wingfield, 1979). Hunter (1964) calls these mnemonic techniques "specialized elaborations of normal memory activities" (p. 72).

The most commonly used mnemonics are rhymes, visual imagery, simple rules, the method of keywords and mediated association (Lindsay and Norman, 1977).<sup>(12)</sup> To elaborate on specific mnemonic strategies goes a step beyond the scope of this study but further research is indicated in this area. Cohen and Aphek (1980) and Pressley et al. (1982) have already made some interesting inroads into the subject of retention of second language vocabulary over time by using mnemonic associations.

The suggestion that mnemonics might be used profitably as a teaching tool to enhance long-term retention of a language in no way implies

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(12) Many examples of these mnemonics are provided by Lindsay and Norman (1977), such as : "I before e except after c", "I can remember the streets because they are arranged in alphabetical order", etc. (p.358).

parrotting rules without understanding; on the contrary, planful memorizing strategies can organize language in a way that understanding is promoted, and later retrieval is facilitated, as though a buoy has been left on the surface of the sea to mark a sunken treasure. Such language subskills as syntax (tenses, gender, conjugation, active/passive, etc.) seem to be particularly vulnerable to forgetting (Ervin-Tripp, 1976); it is possible that mnemonic strategies could be used to ensure a long-term framework or plan on which to base remembering in new contexts, at a later date.

Judicious application of mnemonic strategies is obviously necessary. A criticism of overuse of such strategies is made by Hunter (1964) who feels that mnemonics may not contribute to flexible understanding. He says,

"The important thing is not what or how much a person can remember, but the selective relevance of his remembering to present circumstances." (p.303).

While routines and mnemonic strategies can be helpful initially in language learning, there is evidence that later in the learning process,

language habits may even encourage forgetting (Klein, 1978). Pressley et al. (1982) caution against such instructional strategies when a learner is already using a more efficient strategy. Both Cohen and Aphek (1980) and Pressley recommend that second language students be encouraged to generate their own imagery associations to enhance long-term retention. Future directions in research into how to achieve more efficient memory for unused languages should focus on the development of new instructional strategies, rather than on laboratory experiments.

#### 8.6 Concluding Comments

Rivers (1977) suggests that maybe in the future we will not need to remember any more, because artificial information retrieval systems will store everything we need to know. A pocket-sized simultaneous translator may well take care of our language learning and remembering needs in the future. But for the present, we still have to rely on our own fallible memory systems.

This study of how three children learned, stored and forgot a second language is only a first step ; more longitudinal research is called for, detailing the

twins' process of relearning French in the different context of a second language classroom, to see if such learning results in the release of previously forgotten language skills. Any such prospective study should use improved measuring devices to elicit a larger sample of natural language.

Further speculation must await further study. As Holmes said :

"It is a capital mistake to theorize before you have all the evidence. It biases the judgement." (Doyle, 1929, 1981, "A Study in Scarlett, p.27).

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APPENDICES

APPENDIX 1POST-RECOGNITION TEST COMMENTSKATE

Q. How do you feel about French?

A. I feel I can still remember some of it, though I've forgotten a lot. If someone asked me if I spoke French, I'd say "a bit, yes". I'm forgetting more and more every day, but I don't think I'll forget it totally.

Q. When you hear questions in French, do you remember what they mean?

A. Unless someone says something I can't remember, but immediately someone says something it flashes back. Especially about maths. It's just that several times I got maths sums wrong, and I was supposed to be clever and my teacher used to say things to me. He had a most domineering voice when he was cross.

Q. Were you good at French?

A. Pretty good, when I spoke it fluently. I don't think I was as good as Molly. I was probably as good as she was, but one time she got better marks than me, and from then on I said to myself "she's better than me".

POST RECOGNITION TEST COMMENTSMOLLY

Q. How do you feel about French?

A. Sometimes I feel uncertain. When people ask if I speak French, I say, "No, not really. No. I used to speak it, but I've forgotten most of it". But I wish I could. If I had to save my life I could say a few words. I'd like to be able to speak two languages. Preferably French. I like French. It reminds me of all the good times I had in Niger. I used to be best at grammar in the class - I wish I could get it all right and be smartest at it like I was in Niger. It was my pride and glory! It was the only reason Mme Lecuyer wasn't so fierce, when there was no-one else in the class who was better than you, and I wasn't even French, so Mme Lecuyer couldn't pick on me.

Q. When you hear questions in French, do you understand?

A. I can understand, but I'm afraid of saying anything because I'm afraid of not saying correct grammar. I'm not concentrating on what's being said. The answers pop out! Sometimes I think about it and I remember some of the things I used to say. The thing about whether it's French or not, I don't know how to do it. I just know it's French or not French. It's easy to tell what's French and isn't French.

APPENDIX 2POST-RECALL COMMENTSKATE

Q. Was the test difficult?

A. Well, every time I do a test I find out I know less than I thought I did. I want you to read my letter of excuse because it's funny! I liked it.

Q. Do you want to learn French again?

A. If I'm going to start to learn French then I think I'm going to do well. But these tests make me feel disappointed because I can't remember as much as I thought I could.

Q. What was hard to remember?

A. The tenses. The writing in tenses. Changing tenses into the passé composé. Also the words which didn't exist; I learned grammar another way!

POST-RECALL TEST COMMENTSMOLLY

Q. Was the test difficult?

A. The test was not difficult. Some weren't all that easy. The dictée was easy. I've done so many in French, it was easy. The commands were easy because I've heard them so often. Some words I couldn't remember.

Q. Do you want to learn French again?

A. I like it! I'd like to be able to learn French again but I don't think I'll be able to learn it again through school. I don't like learning things from books. I learn more through experience. I don't like people telling me to do things.

Q. So you think it will be hard to relearn French?

A. At first I think it's going to be easy. If I hear words said, I'll probably remember them. I probably remember more than I think I remember.

APPENDIX 3PHONOLOGICAL PROFICIENCY - 1980

An assessment of Kate, Molly and Miles' pronunciation of French, from a tape made in Niger, February 1980.

KATE	"Very good French accent. Sounds like a native speaker with a slight trace of American intonation, if at all ...."
MOLLY	"Does not sound as fluent and as clear. The subject matter seems to be more difficult; maybe that would explain the difference"
MILES	"Excellent accent. Definitely could be taken for a six-year-old French boy."

(Assessment made 13.4.83 by Dominique Williams, MA, Paris University. French native speaker).

A COMPARATIVE EXAMINATION OF  
KATE'S AND MOLLY'S SCHOOL MARKS : 1975 - 1983

KATE [Born 26.9.69, U.S.A.] MOLLY

1975  
Metropolitan Readiness Test  
U.S.A.

70% ("B" Rating)      67% ("B" Rating)

1979  
French Government School,  
Niger. French marks  
(after 1 year's exposure)

"B" x 3      "B" x 5  
"A" x 2

1980  
French school, Niger  
French marks (after two years  
exposure)

"B" x 4      "B" x 3  
"A" x 1      "A" x 2

OVERALL MARKS  
for the year

15.16 out of 20      14.70 out of 20

1981  
South African  
(English Medium School)  
English marks

82%      82%

Overall marks  
for the year

259      254  
300      300

1983  
South African School  
French marks  
(after 1 term)

86%      91%



LAIRE 1970-1980

ELEVE KEOGH Katy

OBSERVATIONS DE L'INSTITUTEUR	VISA DU DIRECTEUR	VISA DES PARENTS
Katy participe bien à la classe. Quelques difficultés en lecture et en orthographe, mais c'est normal.		
Des progrès en orthographe et en lecture s'est bien. En mathématiques c'est très bien.		
Une bonne élève. Katy doit se ressaisir!		
Bien dans l'ensemble.		
Bien.		

DECISION DE FIN D'ANNEE : ADMIS (E) EN CLASSE SUPERIEURE - AUTORISE A DOUBLER

OM DE L' INSTITUT MG Madama LECUYER  
 OURS CM I A

ANNEE  
 NOTES

MATIERES D'EDUCATION ET D'ENSEIGNEMENT	COEFFICIENT	1 <sup>re</sup> PERIODE sur 20	2 <sup>e</sup> PERIODE sur 20	3 <sup>e</sup> PERIODE sur 20	4 <sup>e</sup> PERIODE sur 20	5 <sup>e</sup> PERIODE sur 20	6 <sup>e</sup> PERIODE	MOYENNE
Français	3	14	15,75	14,75	17,25	18,75		
Conjugaison	1	18	17	19	15,50	18,25		
Lecture	1	11	11	11	11	12		
Maths	4	12,50	12,50	14,50	12,75	16,25		
Éveil	1	11	15,50	16,50	16	17		
TOTAL	10	132	140,75	148,75	145,25	168,50		14,75
MOYENNE MENSUELLE		13,20	14,07	14,87	14,52	16,85		
MOYENNE MAXIMUM DE LA CLASSE		16,87	16,52	16,67	16,95	17,82		
MOYENNE MINIMUM DE LA CLASSE		7,67	7,10	6,97	6,20	8,17		
NOMBRE D'ELEVES	26	26	26	26	27	28		

L'ELEVE KEOGH Molly

OBSERVATIONS DE L'INSTITUT...	VISA DU DIRECTEUR	VISA DES PARENTS
1 <sup>er</sup> PERIODE Molly doit lire beaucoup - Bons résultats dans l'ensemble -		
2 <sup>e</sup> PERIODE Des progrès en Français - C'est bien il faut continuer.		
3 <sup>e</sup> PERIODE Encore de petits progrès. Du courage!		
4 <sup>e</sup> PERIODE Résultats satisfaisants surtout en Français. Encore un effort en math et en ses parfait!		
5 <sup>e</sup> PERIODE Très bons résultats - Mes félicitations		
6 <sup>e</sup> PERIODE		

DECISION DE FIN D'ANNEE : ADMIS (E) EN CLASSE SUPERIEURE AUTORISE A DOUBLER



OLAIRE 1979 - 1980

L'ELEVE KEOGH Miles

OBSERVATIONS DE L'INSTITUT. RICE

VISA DU  
DIRECTEUR

VISA DES  
PARENTS

Très bon travail. Miles est un peu  
étourdi.

Très bon travail. J'aimerais cependant  
un peu plus de soin dans le travail  
écrit.

Excellent travail.

Excellent travail. J'aimerais ce-  
pendant un peu plus de soin dans  
le travail écrit.

Très bon travail. Miles s'est montré  
un peu moins appliqué et un peu plus  
étourdi d'où la baisse de ses résultats.

DEC

DE FIN D'ANNEE : ADMIS (E) EN CLASSE SUPERIEURE - AUTORISE A DOUBLER

APPENDIX 5RECONSTRUCTIVE MEMORY : EXAMPLE A(FEBRUARY 1983)

The twins separately recall a visit to the Thomas family in September 1978. (Four and a half years had elapsed since this event.) The selective and personal nature of their remembering is of interest.

- (a) Kate: "It was so embarrassing the first time 'cos I could understand perfectly well what they were saying, but I couldn't say anything back! It was terribly embarrassing! The whole time I sat there being embarrassed. Oh, actually, we started playing some of the games we played at school so I got along because of that."

-----

- (b) Molly: "I remember we went there and we rode our bikes. And they had conferences and we had conferences to try and figure out what on earth each other was saying; and we had biscuits - those ones with a little strawberry inside; and all we did was ride up and down, ride up and down, stop and have a conference. I had a conference with Kate and they had a conference with each other. And every now and then, Jean, the boy, Jean Marie I think his name was, used to try and say something to us. I was so frightened! Not frightened, but a little afraid. I kept tumbling off my bike because I wasn't paying attention to where I was going, I was just trying to look at them, you know, stare at them, wondering whether I should ask them something, or try and ask them something in French ... and I tell you when those cookies came, I was so relieved I stuffed myself."

### Discussion

Kate and Molly remembered the day with the Thomas family with some intensity of feeling. It was the first time they had been left alone to socialize with French speakers in a French milieu. We had not discussed the visit since that day. Their memories are accurate but different details are emphasized; for example, they rode bikes before tea, and played school games after tea. Kate remembers the embarrassment before they found the common ground of games. Molly recalls the embarrassment of bike riding in silence and the relief of eating.

Both girls show the constructive and the highly personal nature of memory, when building up a verbal narrative of a long past event. They shared the same experience but the salient details each recalled differ considerably.

RECONSTRUCTIVE MEMORY : EXAMPLE B(MARCH 1982)

This second example of the way in which information passes through a subjective filter in memory was provided by a student in one of my adult English second language classes. The previous week we had studied a passage from John Steinbeck's "Grapes of Wrath", concerning the migration of Oklahoma farmers to California. One week later, I asked some questions about the text.

Teacher: "In the passage, it says that the migrant workers had no sense of property rights. What do you think?"

Student: Okay, according to the text, they say the property belonged to the men who were in the city, but those men were always sort of terrified and shaken, because seemingly they were not the true men for that land. They were strangers in that land, and these migrants were coming as the true people of the land who had the proper ownership; therefore, they do have a sense of property rights."

Discussion:

The Xhosa-speaking student, recalling the text she had read the previous week, equates the American migrant workers with indigenous South Africans who she feels have been dispossessed by outsiders. In the text, the Californians refer to the Okies as "strangers". In the student's reconstruction, the Californians become the strangers. The effect of affect is clear.

Text from "The Grapes of Wrath" by John Steinbeck

(50 years ago in the United States during the depression a whole section of the population of Oklahoma was driven to migrate west to California. They were not welcome.)

"The moving, questing people were migrants now. Those families which had lived on a little piece of land, who had lived and died on forty acres, had eaten or starved on the products of forty acres, had now the whole West to rove in. And they scampered about, looking for work; and the highways were streams of people, and the ditch banks were lines of people. Behind them more were coming. The great highways streamed with moving people. There in the Middle- and South-West had lived a simple agrarian folk who had not changed with industry, who had not formed with machines or known the power and danger of machines in private hands. They had not grown up in the paradoxes of industry. Their senses were still sharp to the ridiculousness of the industrial life.

And then suddenly the machines pushed them out and they swarmed on the highways. The movement changed them; the highways, the camps along the road, the fear of hunger and the hunger itself, changed them. The children without dinner changed them, the endless moving changed them. They were migrants. And the hostility changed them, welded them, united them - hostility that made the little towns group and arm as though to repel an invader, squads with pick-handles, clerks and storekeepers with shotguns, guarding the world against their own people.

In the West there was panic when the migrants multiplied on the highways. Men of property were terrified for their property. Men who had never been hungry saw the eyes of the hungry. Men who had never wanted anything very much saw the flare of want in the eyes of the migrants. And the

men of the towns and of the soft suburban country gathered to defend themselves; and they reassured themselves that they were good and the invaders bad, as a man must do before he fights. They said: These goddamned Okies are dirty and ignorant. They're degenerate sexual maniacs. These goddamned Okies are thieves. They'll steal anything. They've got no sense of property rights.

And the latter was true, for how can a man without property know the ache of ownership? And the defending people said: They bring disease, they're filthy. We can't have them in the schools. They're strangers. How'd you like to have your sister go out with one of them?"

APPENDIX 6RECOGNITION TESTSECTION IPHONOLOGY

- ght) 1. Arrête de crier!
- ght) 2. Maman va au marché.
3. \*Du bist ein böser enfant.
- ght) 4. Prends ton buvard.
5. \*Est-ce que tu vas à la escuela manana? (Spanish)
6. \*Ma cobaka est perdue. (Russian - hard [akɑ]).
7. \*Tu es un vilain garçon. (Overlay English pronunciation - [gɑrkɔ̃]).
- ght) 8. Mets la table, s'il te plaît!
9. \*Est-ce que tu aimes le mouton? (Overlay English pronunciation : sound 's' [u] as [aw]).
10. \*Ils travaillent dans le jardin. (English pronunciation : sound 's', 'ent'. [ʒɑrdɛ̃] as [dʒɑrdin]).
11. \*Ne fais pas ça! (Exaggerated English intonation      )
- ght) 12. J'ai perdu ma gomme.
13. \*La chaise est cassée. (English pronunciation : 'ch' as [tʃ]).
14. \*Cet nachmittag, wir haben beaucoup de devoirs. (German)
- ght) 15. Tais toi! Tu fais trop de bruit!
16. Répétez la question, s'il vous plaît. (English pronunciation 'qu' as [kw]).
- ght) 17. Tu as fait une tâche sur le tapis.
- ght) 18. Il est l'heure de partir.
- ght) 19. Les élèves sont en rang.
- ght) 20. Nous jouons aux gendarmes!

SECTION IISYNTAX

1. \*Je avons un chien. (verb concord).
- Right) 2. Tu veux du pain?
- Right) 3. Est-ce que tu veux boire?
4. \*Avoir tu vas une fessée! (word order)
- Right) 5. J'ai un chien.
- Right) 6. Assieds-toi ici!
7. \*Qu'est-ce qu'un soldat? (verb omission)
- 8(20)\*Oh la jolie fille petite! (word order - adjective)
9. \*Asseyez-toi ici. (verb concord)
- Right) 10. Il ne va pas a l'école.
- Right) 11. Le soleil brille.
- Right) 12. Qu'est-ce que c'est un soldat?
- Right) 13. Sois sage et mange ton bonbon!
14. \*Est-ce que veux-tu boire? (interrogative + word order).
15. \*Il ne vas a l'école. (negative omission)
16. \*Sage sois et ton bonbon mange. (word order)
17. \*La soleil brille. (gender)
- Right) 18. Tu vas avoir une fessée!
19. \*Tu veux pain? (omission - indefinite article)
- Right) 20(8) Oh, la jolie petite fille!

Note: In(Miles' test, Questions 8 and 20 were reversed.  
(Christophe's

SECTION IIISEMANTICS

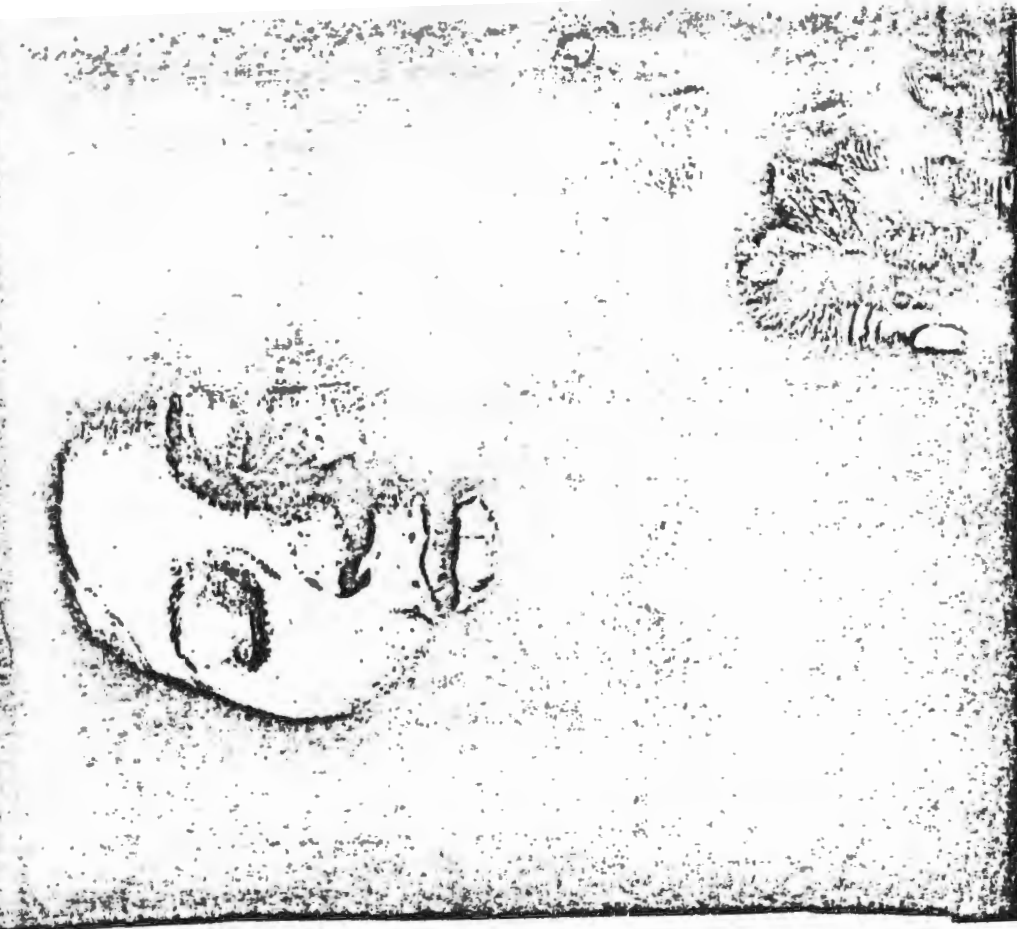
1. Les enfants jouent. (verb)  
\*Les enfants dorment.
2. \*Les gens baissent les mains. (verb)  
Les gens lèvent les mains.
3. Le petit garçon dessine. (noun)  
\*La vieille dame dessine.
4. La femme est triste. (adjective)  
\*La femme est contente.
5. Il a le bras autour de son cou. (preposition noun)  
\*Il a le bras sous la nappe.
6. \*Je fais le bateau! (noun)  
Je fais l'avion!
7. \*Il suce son pied. (noun)  
Il suce son pouce.
8. \*Les hommes ont vingt-cinq ans. (numeral)  
Les hommes ont quatre-vingts ans.
9. Il y a un oeuf sur le toit. (noun)  
\*Il y a une cheminée sur le toit.
10. Oh, le visage est rouge! (colour-adjective)  
\*Oh, le visage est vert!





M

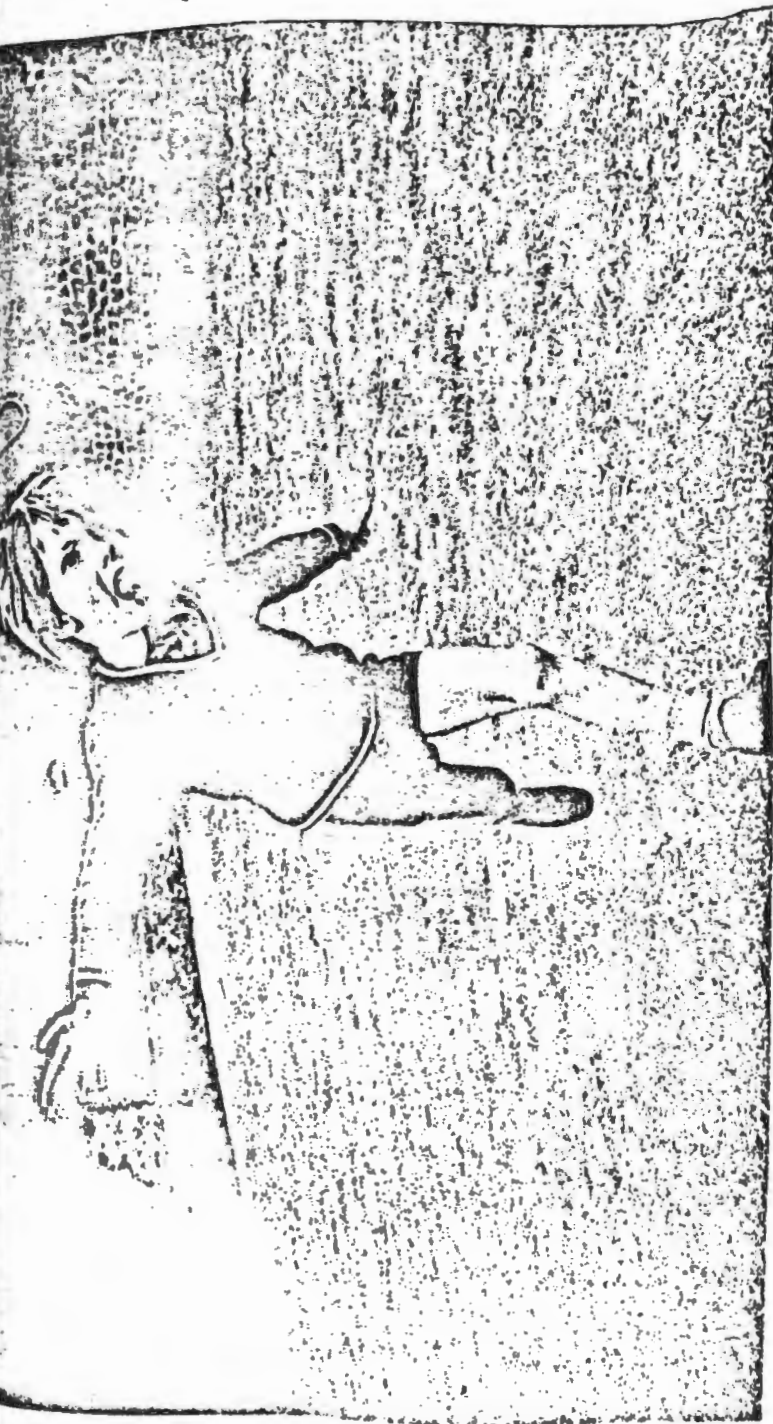




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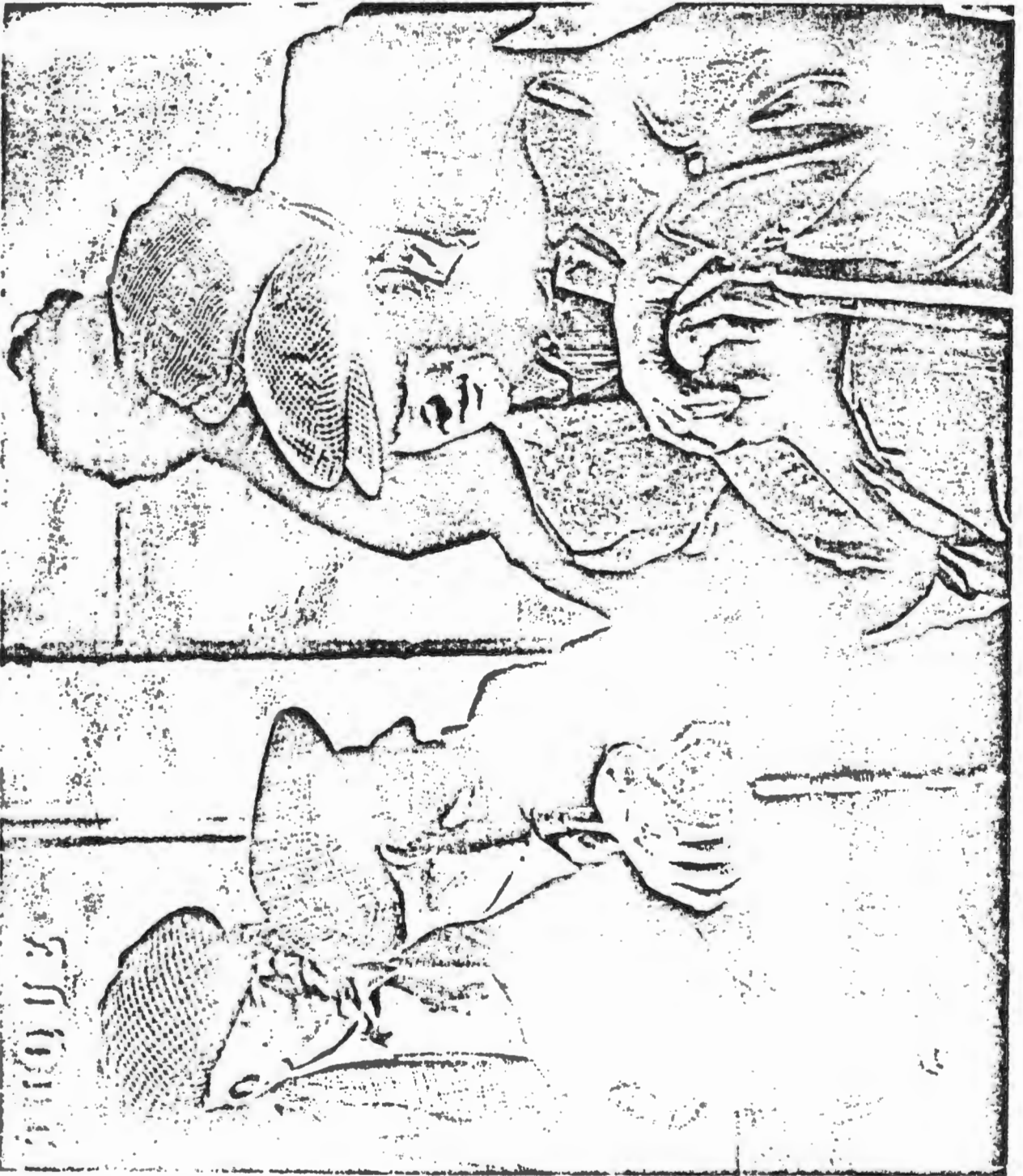


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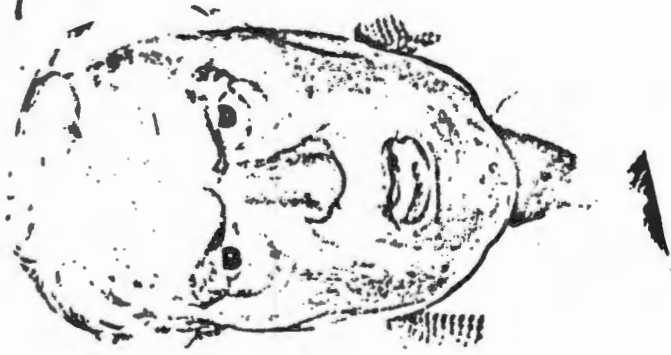




7







APPENDIX 7

RECALL TEST

RECALL TEST.

(A) Phonology: Listening.

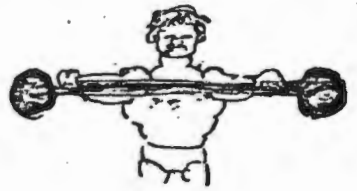
(Point to the picture which goes with this word)  
(6 secs)

CORDING  
PARTS.

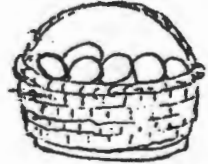
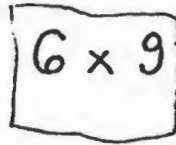
- (1) POISSON
- (2) SIX ŒUFS
- (3) DÉSSERT
- (4) LANGUE
- (5) IL PLEURE

NDS,

1.



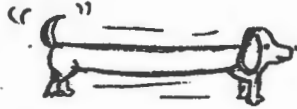
2.



3.



4.



5.



A. Phonology - Reading (One minute to look at)

Trott.

Maman est absente pour toute la journée. Elle est partie ce matin avec une foule de messieurs et de dames dans une grande voiture. Naturellement, Trott est resté à la maison. Il est trop petit. On a prié "Miss" de venir passer la journée avec lui, afin qu'il ne s'ennuie pas. Trott aurait mieux aimé rester seul avec Jeanne, mais on ne lui a pas demandé son avis.

— . —

A. Phonology: Writing (Explain - 3x etc)

RECORDING  
STARTS.

Dictation

(Read once - 2nd time wise)  
- 3rd time correct.

Pour son anniversaire, Séverine a  
reçu un jeu de Monopoly. Aussitôt,  
elle a installé ses cartes et ses  
billets sur la table. Christophe est  
le plus chanceux au jeu. Il a main-  
tenant de nombreux hôtels et  
Séverine est souvent tombée chez  
lui. Elle perdra certainement cette  
première partie. Quel dommage!

3 times

35

# A. Phonology: Speaking /

1. Tiens! Suzanne vient. /ɛ̃//ă/

2. Où vas-tu? /u//y/

3. Je vais voir ma sœur le professeur  
/ə//œ/

4. Elle demeure près d'ici. /R/

B.

## (Intonation)

1. Ask me how old I am in French  
(Quel âge as-tu?) / - - - - /  
Fallup pitch

2. Can you say in French  
"Where's your sister?"  
(Où est ta sœur) / - - - - /

3. Ask in French - "Is this the train for Paris?"  
(rising pitch)  
/ - - - - /

4. Say - "Don't do that!" (Ne fais pas ça)  
/ - - - - /

## (Stress)

Can you say in French.

1. "I saw him yesterday" (Je l'ai vu hier)

2. "I wear a blue uniform" (Je porte un uniforme bleu)

B. Syntax : Listening

a) (Listening for number)

If you think the sentence is in the plural, raise your hand.

(TEST)  
(date: score)

Le garçon parle français.

Les filles parlent français.

~~(M)~~ L'homme parle français aussi.

(verbs)

STOP

b) You are going to hear about Robert and Chantal. Decide whether the speaker is talking about only Robert, about Robert and Chantal, or whether you can't tell. Put a tick in the correct column.

P Ils entrent dans la cuisine

P Ils boivent du lait.

S Il essuie les verres.

~~S~~ P Ils partent.

S/P Il(s) découvre(nt) le trésor.

(5)

B. Syntax: Listening

c). (Gender)

Robert and Chantal are talking on the telephone. Listen to the adjectives and write an R or a C, according to who is talking.

1. "Maman dit que je suis trop grande pour cela." (5 secs)
2. Je suis méchante, n'est-ce pas!
3. "Dis-moi où tu es en ce moment - je suis très curieux, non?"
4. "Moi, paresseuse! Tu es fou!"
5. "Que je suis malheureux!"

Robert

Robert & Chantal.

Can't te

b)

1.

2.

3.

4.

5.

c)

1.

2.

3.

4.

5.

B. Syntax : Reading

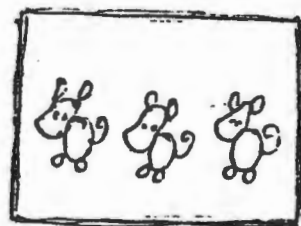
(Fill in blanks)

1.

Voici un dureau .

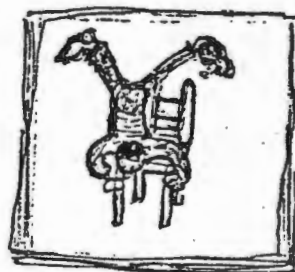


Et voici trois d-----



2.

Le monsieur berche sur la chaise.



Hier, il ----- sur la chaise.

3.

Voici une jeune fille jive.



Le garçon est j----- aussi.



4.

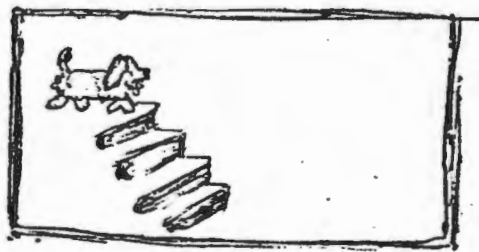
La dame vaut aujourd'hui.



Demain, elle -----

(B) Syntax - Reading. (Cont.)

5. Voici un chien qui va tifer.



Maintenant, il -----



## B. Syntax: Writing

1. Write this in the past tense. (passé composé)

" J'invite Nejla à venir chez moi.  
Elle apporte ses nouveaux disques. On  
écoute la musique et on danse.  
Après, nous dinons ensemble. "

2. Write this as if it is Nejla writing

8.

Syntax: Speaking

(Listen carefully: if you do not understand say - "Je ne sais pas")

Try and answer the question with a whole sentence, not just a couple of words

①

Qu'est-ce que c'est ?

Il est endormi ?

②

Où sont les élèves ?

Que fait le maître ?

③

Combien d'enfants

y-a-t-il ?

Est-ce qu'elles jouent à  
cache-cache ?

400  
B. Syntax: Speaking.

④

Qu'est ce qui est  
arrivé à Miles?

Pourquoi il est tombé?

⑤

Est-ce qu'il prend  
le <sup>plus</sup> grand avion?

Ce n'est pas le plus petit.

⑥

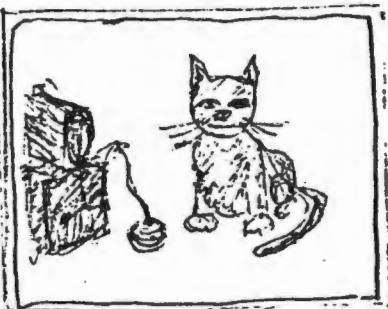
Que font les gens?

C'est le matin?

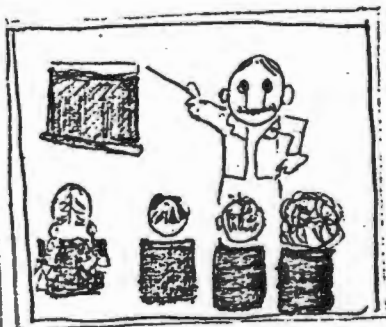
B. 4

Modèle

1



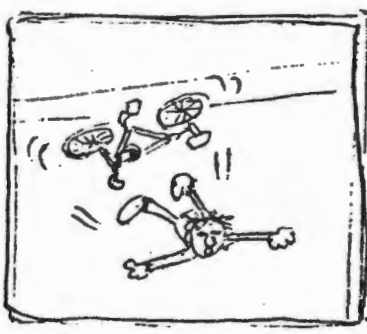
2



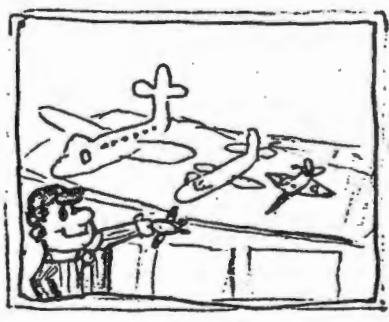
3



4



5



6



## C. Semantics - Listening

Tester reads instructions -  
5 secs. between each command.

1. Lève - toi!
2. Lève la main droite!
3. Baisse. la!
4. Tourne - toi!
5. Lève le pied gauche!
6. Baisse - le!
7. Assieds. toi!
8. Mets les mains sur les épaules!
9. Mets les mains sur la tête!
10. Baisse - les!

(10)  
1 point for each  
instruction carried out

## C. Semantics: Reading,

Mère m'embrassa trois ou quatre fois pour me donner courage. Elle me serrait très fort, humait à petits coups mes cheveux et faisait entendre un léger ronron, comme les gourmets quand il mange quelque chose de fin.

Puis maman, d'un coup d'œil inspecta mon équipement: le tablier noir, le grand béret, la pèlerine à capuchon, mon cartable neuf.

"Ça va bien, dit-elle. Tu es prêt."

---

1. De quoi s'agit-il?

- a) le départ en vacances.
- b) un dîner à la maison.
- c) le départ pour l'école.
- d) le départ à l'hôpital.

Semantics:

.. Reading

A Paris, quand il n'y a plus de place dans un autobus, le conducteur met sur la porte du véhicule une affiche qui porte le mot "COMPLET." Cela veut dire qu'aucun voyageur n'a le droit de monter.

Un touriste anglais, ignorant cette coutume, croyait que "COMPLET" était le nom d'une ville importante puisque tous les autobus qui y allaient étaient pleins.

Alors il courait après tous les autobus dans l'espérance de visiter cette ville importante.

Malheureusement, il a dû retourner en Angleterre sans avoir jamais découvert "COMPLET".

Write a <sup>summary of</sup> ~~little~~ ~~for~~ this piece in English.

Imagine que tu as oublié de faire tes devoirs de mathématiques.

Le professeur te demande pourquoi tu ne les as pas fait.

Invente une excuse!

(Modèle - "mes parents avaient des invités" etc)

Niamey; le 3 mars.

Madame,

.....

.....

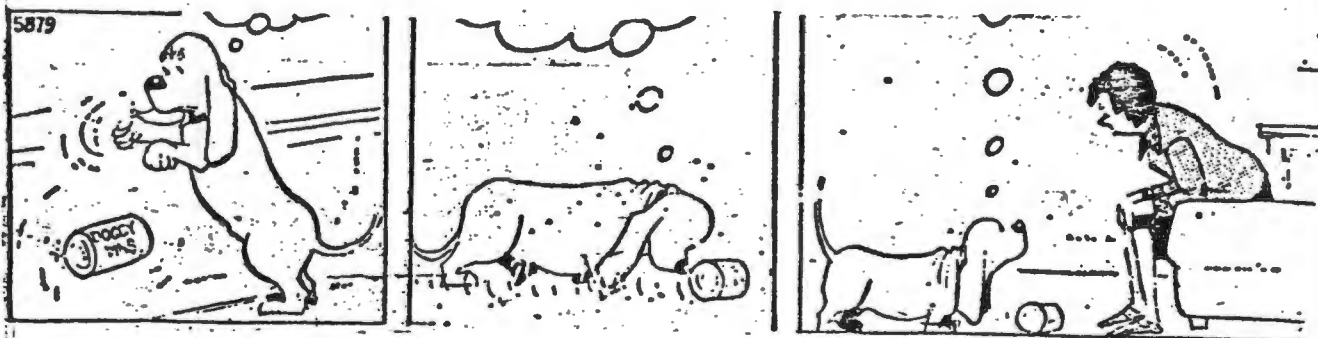
.....

.....

.....

C. Semantics : Speaking

Qu'est-ce qui se passe ?

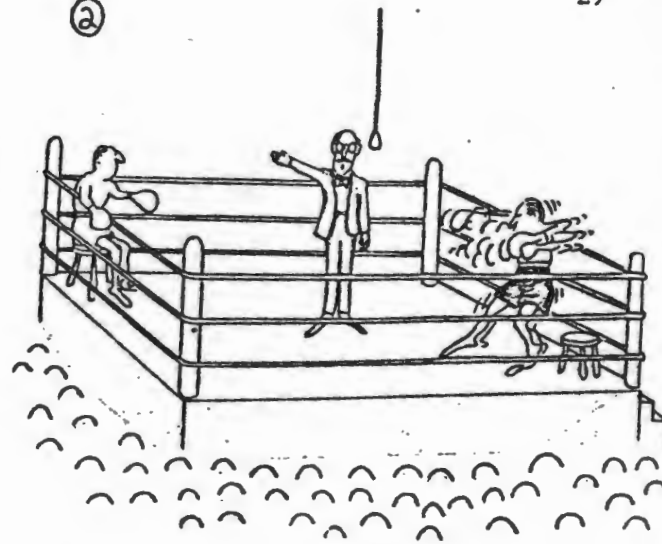
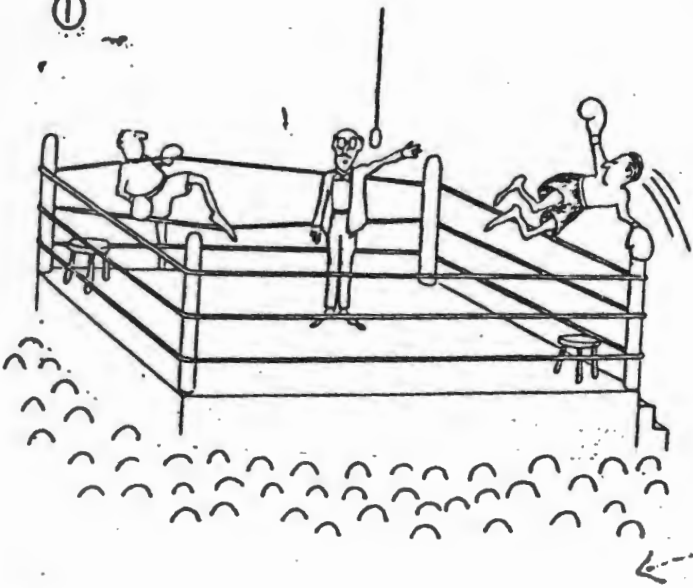


# Qu'est-ce qui se passe ?

①



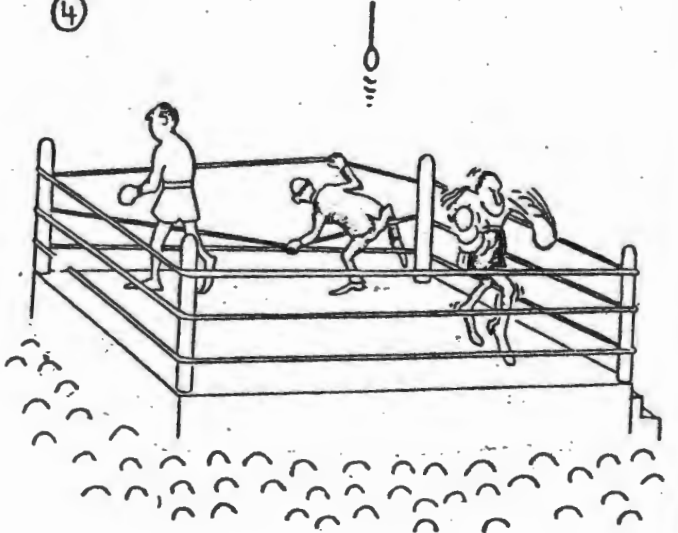
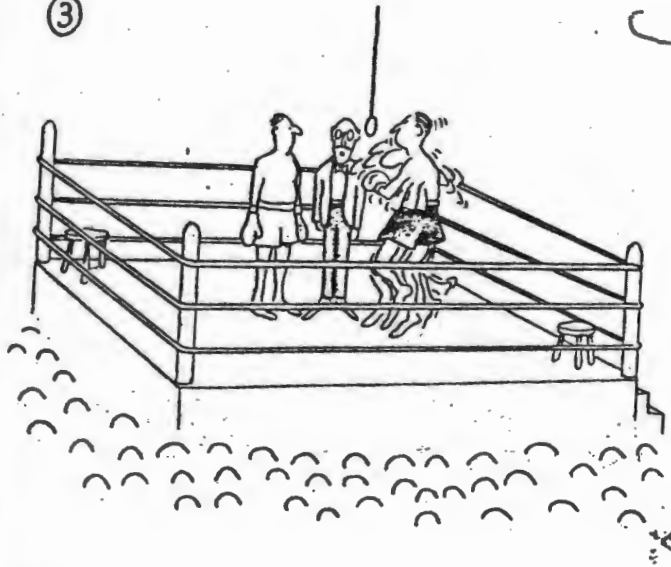
②



③



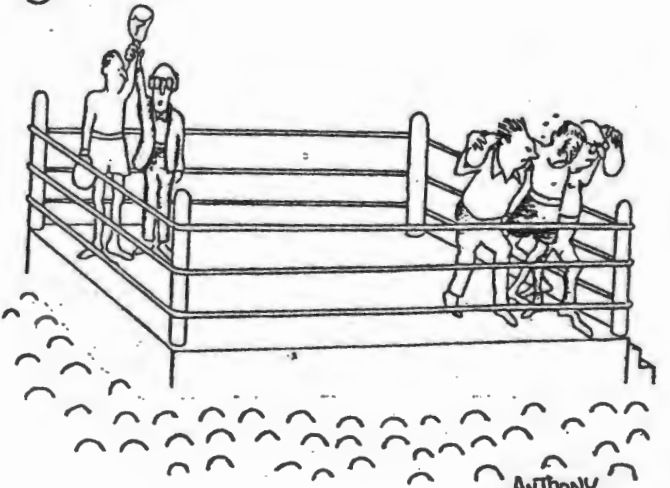
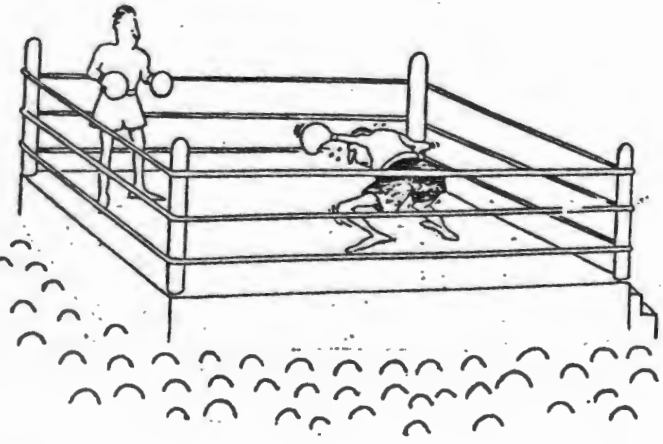
④



⑤



⑥



ANTHONY

APPENDIX 8STRATEGIES ON RECOGNITION TEST (SEMANTICS)MILES : 15 JUNE 1982

- Q1: I knew that "dorme" means "sleep" and in the picture they couldn't be sleeping because they were playing. And "joue" means "play"; that's easy. In the beginning of our readers, in the very beginning, there was something about the two children. The one was a boy and the other was a girl, and it said "Joue" and the boy's name, and then it said "Joue" and the girl's name. That's all I have to say.
- Q2: "Lève" sounds like "put up".  
I don't know.  
"Baisse!" That's the key-word! "Baisse". The base of something.  
So that means their arms would be down.
- Q3: I know because "petit garçon" means "small boy", so that nothing else could be right.
- Q4: "Contente" sounds like "content". And I know that she isn't content because of her tears.
- Q5: I was guessing. I just said one or two, whichever one suited me. "Cou" ... where does that come from? Doesn't that mean "head"? ... I don't know about that one.
- Q6: "Avion" - I knew meant "airplane". I remember in Niger an airplane flew by and all the kids were shouting "Avion, avion!" And I looked up to see if it was a bird or a cloud, and then I saw that it was an airplane!

- Q7: Now this one I should remember! "Il suce son pied. Il suce son pouce!" [correct pronunciation and form]. Because there was this little girl in school, all the time sucking her thumb, so our teacher teased her and called her "suce pouce"!
- Q8: I'd say 2, because quatre-vingts probably means forty. Nothing else I can say about that one. I was mainly guessing for that.
- Q9: Well, "neuf" means "egg", and "toit" probably means "roof", and there's no chimney on the roof, only an egg, and there's a crazy man dancing!
- Q10: Well, "rouge" probably means "hot-tempered". I don't know. I've lost all my French. I can't think. "Rooi" (Afrikaans) means "red". "Rouge" ... I just can't think.

APPENDIX 9ANALYSIS OF MILES' KNOWLEDGEOF FRENCH PHONOLOGY- 2½ YEARS AFTER DEPARTURE FROM FRENCH-SPEAKING MILIEU

(as shown in Recall Test)

A. Phonology . Reading . (One minute to look at it)

Trott. ✓

Maman est absente pour toute la journee. Elle est partie ce matin avec une foule de messieurs et de dames dans une grande voiture. Naturellement, Trott est resté à la maison. Il est trop petit. On a prie "Miss" de venir passer la journee avec lui, afin qu'il ne s'ennuye pas. Trott aurait mieux aimé rester seul avec Jeanne, mais on ne lui a pas demandé son avis.

Mules. Reading # 1

TRŌT

1. māmă ε absă pur taw a zurniă.//
2. El ε parti se matiē avek yn: faw dă
3. mesjφ e dă dam dă yn: grăn vvaty:r.//
4. natyrkament trŏt es reste a la mesō.//
5. il es trŏp ptit.// ōn a pri mis dă
6. vnir pase la zurniă avek lφi afin
7. kwil nă s φiyn pa. // trŏt ōRE
8. mijaw ame reste sjφ avek ză, mā
9. ō n lφi a pa dmăde sō avi.//

Mistakes

?

Errors

1.

[ɛ] (no liaison)  
[b] for [p:] marginally significant in 'absenté'

#1,2. [absä] - interlanguage dev. error - omitted ending - overgeneralized

[a] for 'la'?

#2 [təw] #1 [taw]  
[fəw] ([faw])  
Afrikaans English interference

# [ʒurniə] #2 [ʒurni]  
[ʒurniə] [ʒurnie]

Unsure about how to pronounce 'ee' - double 'e' seems to cause him to add an extra vowel sound. Interlang? or random guessing? "ee" [iə] in Afrikaans?

2.

[sɛ] → ?

#2 [ɛs] - transitional - makes this error +2. knows he should leave s.thing off the end - only leaves last sound off.

[mat<sub>i</sub>ɛ̃]

#2 [œ̃] + 2 interlang.  
#1 correct [ɣn] consistent application of rule.

#2 [fəw] - #1 [faw] see above

3.

[dä] (no liaison) #2 [œ̃] see above.

#2 [grän] } Interlang: overgeneralizes  
#1 [ɣrän] } omission of final consonant

#1 [grän] - interference - Afrikaans

#1

# Mistakes

?

# Errors

4. #2 [natyrləmã]  
 #1 [natyrləment]  
 (metathesis)

#2 [trɔ]  
 (all other times correct)

5.

#1 [ɔ̃n] remembered  
 riasan or forgot  
 dropping of consonant?

6.

#1 [natyrləment]  
 |  
 Interference - English,

#1 [ɛs] - see above.

? #1 [mesɔ] cf. #1 [amei] [ɔre] [ma]  
 #2 [masɔ] #2 [ame] [arwã] [mɛ]  
 [s] instead of [z] - Afrikaans English

#1 [ɛs] - see above.

#1 #2 [trop] - Devt. error.  
 #2 [trop] - added final  
 [ptit] - sand syllable.

#1 [trop] - Afrikaans 'r'  
 #1 [pri] - "prié" - Cant remember  
 how to pronounce 'é'  
 if accompanied by a vowel  
 (as in 'ée!') (Afrikaans? 'ie' = [i])

#2 [zurnie] - see above  
 #1 [zurniə] = also Afrikaans 'r'

[iφi] - Interlang: regular error  
 consistent. Not from  
 English or Afrikaans.

Mistakes

?

Errors

6.

'afin' ('in' ending)

# 1 [matɛ̃]. ?

[afin] - English transfer

# 2 [matɛ̃] [afɛ̃] - Correct

Remembering?

7.2 [kwit]

# 2 [əljɔ̃n]

8.

[nɛ]

# 1 [øjɛ̃n]

→ ?

#1 [kwil] - English transfer

#2 [kwit]

#1,2.

[ame] - Interlang.

"ai" in English pronounced same as in French. Making up a rule here.

(C. H. ...)

Can't pronounce "ennuye": Too hard? Above his level of reading at the time he learned? Reverses 'n' a vowel sound.

#1,2. "seul"

[sjø]

- epikrasis / consistent mistake

"Jeanne" - [zã] Over-

generalizes omission of final syllable.

?

?

#1

[mã] - (corrected in # 2)

9.

[nã] - insignificant

#2 [dmã] - leaves off last half of word! Has definitely internalized this rule of French pronoun of omission

"aurait mieux"  
# 1 [ɔ̃RE mʲãw]  
# 2 [ãRWã mʲjø]  
overload? can only focus on 1 word at a time.  
'ieu' of 'messieurs' correct both x)

6 Errors

ERRORS

14 Developmental

Developmental

Interlingual

[abs̩] <sub>=</sub>

overgeneralization of rule to omit consonant final syllables when not followed by vowel.

[taw] - omits last syllable

[faw] - omits last syllable.

[gr̩n]

omission of word final consonantal syllable. overgeneralized rule.

[ɛs]

knows rule of omission but doesn't know how much to omit!

[ɛs] same as above

[trɒp] sounds 'p'

[ptit] - forgets rule of omission.

[lɔi] interlang. error.

transfer of training? Based on early pheretic sounding out?

[a] ^

[sɛ]

[natyrləment] - English.

[mɛs̩] Eng. or Afrikaans 's'

? (Sup. Afrikaans)

[trɒp] Afrikaans 'r'

? (English?)

[pri] - Afrikaans 'ie' = [i]

[zurniə] - Afrikaans 'r' and 'ee' = [iə]

[vniɾ] - Afrikaans 'r'

[afin] - English.

Developmental	?	Interlingual.
7. (cont)		
<p>[øiyn]. ('ennuye')</p> <p>Miles learned this word on May 26, 1980 - 2 weeks before the end of French school. "Last learned, last forgotten.")</p>		<p>[kwil] - English "qu"</p>
<p>8. [ame] "ai" in English pronounced the same - so must be making up a rule. (2nd also)</p>		
<p>[sɔjɸ] another consistent mistake (in 2nd also - forgetting &amp; making up rule?)</p>		
<p>[zã] - overgeneralization of omission rule: ...</p>		
	<p>[mã] - ?</p>	
<p>9. [lɸi] - not based on English or African - consistent devt. error (phonetic sanding out?)</p>		

Miles. Reading # 2

trɔt

- 1. māmā ɛ absā pur tow a zurni //
- 2. ɛl ʔs parti sɔ matɛ avek ɔe fow dɔ
- 3. mesjɔ e dɔ dam dǎ ɔe grǎn vwaty:r
- 4. natyrlɛmǎ trɔ ɛ reste a la māsɔ //
- 5. il ɛ trɔp ptit. // ɔ a pri mis dɔ
- 6. vnir pase la zurnie avek lɔi afɛ
- 7. kwit nɛ s ɔljɔn pa. // trɔt arwa
- 8. mjɔ ɔme reste ɔjɔ avek zǎ, mɛ
- 9. ɔ nɔ lɔi a pa dmǎ sɔ ɔvi. //

# 2  
25

# ERRORS.

Developmental	?	Interlingual
---------------	---	--------------

1. [apsā]      [a]      [t<sub>ow</sub>] (afikaans "oo" sound)  
 See # 1.  
 [t<sub>ow</sub>] overgen: omits last syllable.

2. [ɛs] knows rule of omission - not sure what to omit.      [zurni:] - (afikaans "ee" - though obviously still forming rule. line 6 - [zurnie])

[œ̃] - having pronounced this correctly 2x in 1st dictation, fell back on generalization of [œ̃] for both vowels.  
 [fow] overgen: omits last syllable

3. [œ̃] see above.  
 [grān] word final consonant + vowel wrongly omitted. overgeneralization.

4. [masō]. Gets [ɛ] & [a] confused in another 2 places [arwā] line 7 [ame] line 8. Interlanguage.

5. [ptit] - does not omit final consonant.      [trɔp] - ~~English~~ Afrikaans English / Afrikaans?

ERRORSDevelopmental

?

Interlingual5. (cont)[pri] Afrikaans  
"ie" = [i]6. [lɔi] phonetic  
sounding out? consistent  
error in test #1 too.  
Formed his own rule.[ʒurnie] Afrikaans  
"ee" = [ie]7. [ʒljɔn]  
("ennuye") (? mistake)  
See 1st. Dictation  
analysis:  
tends to substantiate  
"last learned or forgotten"[kwit] English  
"qu"

([ɑrwa] (mistake?))

8. [ame] fairly  
consistently used  
[a] for [ɛ] - not  
interlingual - Made up  
rule.[sɔjɔ] - also  
used consistently - not  
interlingual ∴ made up rule[ʒɑ̃] ("Jeanne")  
same both  
dictations. Pron. like  
"Jean" - omits last  
syllable incorrectly

1

ERRORS.

# 2

Developmental

?

Interlingual

92

[ $\phi$ ] (phonetic  
 sound out) Consistent  
 error. Not interlingual.

[ $d\overset{\sim}{m}\overset{\sim}{a}$ ] - overgen.  
 rule of omission of last  
 syllable.

## General Characteristics

Reading individual words (as he did at school when he was learning to read.)  
Therefore, no liaisons.

ε = et absā  
dã = dāz yn  
sō avi - sōn avi  
õ a = õn a

Unsure when to sound consonantal endings  
Sometimes adds consonant sound (incorrectly)  
Sometimes omits consonant sound (incorrectly)

ADDS	OMITS
εs (ε)	(absā:t) (absā)
trɔp (trɔ)	(tut) (tow)
ptit (pti)	(fɔl) (fow)
	(grād) (grā)
	(trɔt) (trɔ)
	<del>sjɔl</del> (sjɔl)
	(zā:n) zā

The omitting seems to point to ~~incorrectly~~ <sup>incorrectly applying</sup> his knowledge of the sound system of French.

Correct omitting (not counting when a liaison could occur) occurred 50% more than incorrect omitting, showing awareness of rule -

The French R was retained (vocalic) in the grand dictation - Intermittent Abukaram's

in the first dictation.

### Interlingual transfer

Considerable influence of Afrikaans  
- noted @ vowel sounds.

"ee" = [iə]

"ie" = [i]

"ou" = [ow]

(others?)

### Consonantal Afrikaans sounds

"p", "r"

### English phonology.

"ou" = [əw]

"ment" = [mənt] (instead of [mã])

"s" in central pos: = [s] (instead of [z])

"in" = [in] instead of fr. [ɛ̃]

"qu" = [kw] instead of fr. [k]

### Interlanguage Errors

Ignoring mistakes - interlanguage errors are apparent - based on forming interim pronunciation rules:

- The phonological errors can be divided into those of
- ① Omission - knowledge of omission rule causes overgeneralization
  - ② addition - forgets? omission rule - adds final consonant -
  - ③ Selection - chooses sounds on basis of phonetic sounding out? + transfer of early training
  - ④ ? ordering - metathesis.

largely ① - shaping clear rule formation - regularization of remembered rule.  
Can't remember when this rule applies.

"authentic reconstruction"

The omission and addition errors cannot be attributed to cognitive factors; the selection errors, too, ~~are~~ are not caused by limited ability in phonology at age 5-7.

Only the metathesis errors might be attributed to his young age at learning: this is unlikely since the word he has difficulty with "ennuye" - he learned <sup>bread</sup> 2 weeks before leaving school - (Stamped on May 27, 1980, in his book "Daniel et Valérie")

It was significant that in the 2nd Dictation, the number of interlingual errors dropped - from 12 to 7.

The developmental errors rose from 14 to 17.

Indicates that rule formation is a strategy of remembering.

A. Phonology: Writing (Explain - 3x etc)

Dictation (Read once - 2nd time wide)  
3rd time correct.

Pour son anniversaire, Séverine a  
reçu un jeu de Monopoly. Aussitôt,  
elle a installé ses cartes et ses  
billets sur la table. Christophe est  
le plus chanceux au jeu. Il a main-  
tenant de nombreux hôtels et  
Séverine est souvent tombée chez  
lui. Elle perdra certainement cette  
première partie. Quel dommage!

mes

35

Pur sã anivèrsèr, (Séverine) a rsy

œ zø dɑ mɑnɔpɔli. // osito, ɛl

a , ɛstale sɛ kart: ɛ sɛ biʒe

syr la tabl: // (Christophe) ɛ la-ply

ʒɑsø o zø. // il a mɑtɑnɑ dɑ

nɔmbrø otɛl ɛ (Séverine) ɛ

suvɑ tombe ʒe lyi. // ɛl pɛrdra

sɛrtɛnmɑ sɛt pɛmijr parti. //

kɛl domɑʒ. //

Phonetic transcription of Jules' dictée #2.

pur sǝ anivɛrser, (sɛvɛriɛ) a  
 Rʃy œ ʒp də mɔnɔpɔli. // ɔzito  
 ɛl a. ɛstale sɛ kɑrd ɛ si bie  
 syr la tabl: // (Christophe) ɛ lə  
 ploɛ ʃɑsɔ ɔ ʒp. // il la mɑtɑnɑ  
 də nɔmbɛr ɔtɛl ɛ (sɛvɛriɛ) ɛ  
 sɔvɑ tɔnbɛ ʃɑ lyi. // ɛl pɛrdɛ  
 sɛrtɛnmɑ sɛt promie parti. // kɛl  
 dɔmɑʒ. //

Pour son anniversaire, Séverine a résolu  
un jeu de monopoly. Au hasard elle in-  
talé se card et sy lie sur la table.  
Christophe et le plus chanceux ou autre jeu.  
Il la maintient de nouvelles hôtels  
Séverine et sou se vant tout tonbe  
luis. Et perdra certainement set prom  
partil. Quel dommage!

a

# Miles. Dictation. Error Analysis

## Errors

a TESUS (followed by vowel)  
 Remembers rule about not pronouncing final consonant - compensation?

"ausitaux" - for "aussitôt"  
 single s = [z] inter-lingual transfer - English?

INTER LINGUAL

"card" - (English He understood the word - (cognate) so used English orthography)  
 "bié" - (for "billet") omits [j].

INTER LINGUAL

developmental

INTER LINGUAL

OR WHAT?

"pleu" = for [ply] ("plus")  
 ↓  
 [ploε] in French.  
 Inter-lingual error.  
 English? (neuter. teutonic)  
 Next word contains same sound - gets it right! also "jeu"

\* "on" for [ɑ:] close - not [ɔ] (2x significant)

\* "nombres" for "nombreux"  
 [nombRɛz] for [nombRœz]  
 not v. significant.

pos. confusion between 's' 'e'

"set" for "cette"

## Mistakes

"sy" - (previously wrote "sé")

"la" - echo of previous word final consonant.

"tonbé" for "tombé"  
 (ripet in 1st one)

"she" for "chez" (in 1st one "ché")

"promié" (correct in 1st 1.)

## Remember

"eux" = [ø]

"aux" = [o] (several times)

remember [e] in word final position = "é"

"et" - know this means and. [e]

bié.

"et" for "es" overgeneralization

Remember "ch" = [ʃ]

"c" = [s]

[u] = "ou"

"ment" = [m]

at a habit

637

A. Phonology: Speaking

1. Tiens! Suzanne vient. /ɛ̃/ /ã/

2. Où vas-tu? /u/ /y/

3. Je vais voir ma sœur le professeur. /ə/ /œ/

4. Elle demeure près d'ici. /R/

## (Intonation)

1. Ask me how old I am in French  
(Quel âge as-tu?) /- - - - /  
Fallup pitch2. Can you say in French  
"Where's your sister?"  
(Où est ta sœur?) /- - - - /3. Ask in French - "Is this the train for Paris?"  
" (rising pitch  
/ - - - - - /4. Say - "Don't do that!" (Ne fais pas ça)  
/ - - - - /

## (Stress)

Can you say in French.

1. "I saw him yesterday" (Je l'ai vu hier)

2. "I wear a blue uniform" (Je porte un uniforme)

Miles. Phonology: Speaking

1. tiē. syzān viē.

tiē. syziā vā.

"metaphones";  
lost distinction

2. u va ty

u va tu

lost distinction  
between u, v

3. ʒə ve vwar ma sœr lə profesœr

ʒə me fə lə sœr profisœr

(missed second  
r) - retained  
/œr/

4. εl dmoœr PRE DISI.

εl dmoœ PRE LISI

indistinct in  
R but 2nd one  
's' 'zay'

Has lost some ability to distinguish between  
vowels. Retained R.

APPENDIX 10MODERN LANGUAGE APTITUDE TEST (MLAT)

John B Carroll, Stanley M Sapon. 1959 Edition.  
The Psychological Corporation, New York.

Purpose:

The MLAT is the most widely used test for predicting foreign language ability and is considered to be as reliable as any. In a comparative study of forgetting, it is necessary to check if there are basic differences in the subjects' original ability to learn, before they forget.

Subjects:

Kate : age 13, in US equivalent of 8th grade;

Molly : age 13, in 8th grade;

Miles : age 9, in 5th grade.

Results:

Kate: 145 out of 192

Molly: 138 out of 192

Miles: 79 out of 192

Discussion:

Carroll claims that language training has little effect on MLAT scores, although he admits that "previous experience with foreign language learning may give a student a better idea of how to go about learning a new language." (p.21). Molly and Kate are certainly more conscious of grammatical categories than most children of their age and grade in South Africa, as a result of the heavy emphasis placed on French grammar in their two years in Niger. This appeared to facilitate Part IV of the test for them.

In addition, the emphasis on rote-learning in South African schools seems to have increased the girls' ability to complete the paired-associates test (Part V).

Neither of these aspects - prescriptive language teaching and rote learning - are common in American education, thereby increasing the difficulty of the test for the average 9th grade American highschool student, for whom the test was intended.

The twins, Kate and Molly, both scored in the 99th percentile for girls in US 9th grade (a year above them). Miles scored in the 40th percentile for boys in US 9th grade (4 years above him). Miles performed well on the phonetic section (Part II), but the volume of verbal information in Parts I, III, IV and V overtaxed his processing capability. Unfortunately, I was not able to obtain an aptitude test for a child of his level of cognitive development.

For this reason, and for reasons of training in the girls' case, it is difficult to say whether the MLAT test is an accurate predictor of the language learning ability of these children. It did reflect the very slight scholastic advantage that Kate has had over Molly for the past few years. It certainly did not show any marked difference in their ability, which had been a potentially distorting variable in their memory performance.

APPENDIX 11

MILES, AGE 6      Conversation taped February 1980

(Miles had just been reading aloud in English):

Q      What's the difference when you read French?

A      You don't pronounce the 's'.

Q      What else don't you pronounce?

A      Sometimes at the finish of words, sometimes you don't pronounce 't', 'p' and those sort of things.

Q      What does your teacher say if you do?

A      "Dit o mé<sup>(1)</sup>, ça ne va pas?" ...

Q      Who else is a good reader in your class?

A      Jaffar. Not Lionel ... he says "le flabado" instead of "le lavabo" ... And poor Debonnet, he doesn't know what a kangaroo is. While we were just learning a new "syllable" [French pronunciation] and he had to repeat "un kangourou est monté sur une estrade". He had to repeat that. He said "un vango est monté sur une estrade". Then he said "un kango est monté sur un estrade".

Q      What does the teacher say when he does that?

A      "Ca ne va pas, ditomé? Tu ne sais pas dire kangourou?" And once she sented [him] up to the picture to see where the "vango" or what we call "kangourou" was, and he didn't know where it was! ... Le Kagabo!"

Q      What's that?

A      "Le lavabo."

Q      Ah yes, you're still on that.

A      "Le vango!" ... Madame Maroua always says "if you won't shut up, if you won't "taisez", I'm going to make you

(1) "Dit o mé" (sic) = "Dis donc, mais"? A characteristic exclamation of the teacher which does not translate literally.

draw;" you see 'cos Mme Bonnal goes off to see the "secrétariat" a lot, and I have to "surveillance".

Q Why does she make you "surveillance"?

A I'm the most best at it. 'Cos whenever somebody "fait" - does a bazard [English pronunciation] but doesn't talk, I just hit them on the head!

Q Does a what?

A "Bazar" [French pronunciation]

Q What's that?

A "O, quelque chose de fou".

Q Why does she choose you?

A I'm the most "sage". I don't know why. Probably I'm the most "sage" ....  
The fight today wasn't too bad!

Q Well, tell me about it.

A 'Cos we called them the "cochon dindes" - the guinea pigs. We were fighting between the third grade "cours" and there was a little tree ... we fought from there, and they made "pierres" in the third grade "cours" and we made "pierres".

Q What, stones?

A Stones, sandrocks ... You take a stick and you have to get all of the sand away and just to have, like, "terrain" ... it turns out to be a lot of rocks.

Q What happened in the battle this morning?

A We won ... because in our wars, "bagarres de sable" we call them - the way you win is when you make one of the people on their team cry - and Lionel made one of them cry.

Q Who did he make cry?

A Oh, one of the "secondaires", one of the "secondaires de maternelle" ...

APPENDIX 12

RAW DATA

MILES & CHRISTOPHE  
(RECOGNITION)

RECOGNITIONPHONOLOGY TEST, JUNE 1982

	MILES KEOGH				CHRISTOPHE HENAUT	
	Wed 9-6	Bis	Sat 12-6	Bis	Sun 13-6	Correct Response
1	Yes	Yes	Yes	Yes	Yes	Yes
2	Yes	*No	Yes	Yes	Yes	Yes
3	*Yes	No	*Yes	No	No	No
4	Yes	Yes	Yes	Yes	Yes	Yes
5	No	No	No	No	*Yes <sup>x</sup>	No
6	*Yes	*Yes	*Yes	No	*Yes <sup>x</sup>	No
7	*Yes	No	*Yes	*Yes	*Yes <sup>x</sup>	No
8	Yes	Yes	Yes	Yes	Yes	Yes
9	*Yes	*Yes	*Yes	*Yes	*Yes <sup>x</sup>	No
10	*Yes	No	*Yes	*Yes	*Yes <sup>x</sup>	No
11	*Yes	*Yes	*Yes	*Yes	*Yes <sup>x</sup>	No
12	Yes	Yes	Yes	Yes	Yes	Yes
13	*Yes	*Yes	*Yes	*Yes	*Yes <sup>x</sup>	No
14	*Yes	No	*Yes	*Yes	No	No
15	Yes	Yes	Yes	Yes	Yes	Yes
16	No	No	*Yes	No	*Yes <sup>x</sup>	No
17	Yes	Yes	Yes	Yes	Yes	Yes
18	Yes	Yes	Yes	Yes	Yes	Yes
19	Yes	Yes	Yes	Yes	Yes	Yes
20	Yes	*No	Yes	Yes	Yes	Yes
Out of 20	12	14	11	14	12	
%	60	70	55	70	60	
Ave.	63,75%					

<sup>x</sup>He hesitated but finally decided it was French.

\*Errors

RECOGNITIONSYNTAX TEST : June 1982

	MILES				CHRISTOPHE	
	Wed 9-6	Bis	Sat 12-6	Bis	Sun 13-6	Correct Response
1	*Yes	No	*Yes	*Yes	No	No
2	*No	*No	Yes	Yes	Yes	Yes
3	Yes	*No	Yes	Yes	Yes	Yes
4	*Yes	*Yes	*Yes	*Yes	No	No
5	*No	Yes	Yes	Yes	Yes	Yes
6	Yes	Yes	*No	Yes	Yes	Yes
7	*Yes	*Yes	*Yes	*Yes	No	No
8	Yes	Yes	Yes	Yes	Yes	Yes
9	*Yes	*Yes	*Yes	*Yes	*Yes	No
10	Yes	Yes	Yes	Yes	Yes	Yes
11	Yes	Yes	Yes	Yes	Yes	Yes
12	Yes	*No	Yes	Yes	Yes	Yes
13	*No	Yes	Yes	Yes	Yes	Yes
14	*Yes	No	*Yes	*Yes	No	No
15	No	*Yes	*Yes	*Yes	No	No
16	*Yes	*Yes	*Yes	*Yes	No	No
17	*Yes	No	*Yes	*Yes	Yes	Yes
18	Yes	*No	Yes	Yes	Yes	Yes
19	*Yes	*Yes	*Yes	*Yes	No	No
20	*Yes	*Yes	*Yes	*Yes	No	No
Out of 20	8	9	9	10	19 <sup>x</sup>	
%	40	45	45	50	95	
Ave.	45%					

<sup>x</sup> Definite about what was correct and incorrect French.

\* Errors

RECOGNITIONSEMANTICS TEST - June 1982

	MILES				CHRISTOPHE	
	Wed 9-6	Bis	Sat 12-6	Bis	Sun 13-6	Correct Response
1	Yes	Yes	Yes	Yes	Yes	Yes
2	No	No	No	No	No	No
3	*Yes	No	No	No	No	No
4	*No	Yes	Yes	Yes	Yes	Yes
5	Yes	Yes	Yes	Yes	Yes	Yes
6	No	No	No	No	No	No
7	Yes	Yes	Yes	Yes	Yes	Yes
8	No	No	No	No	No	No
9	*No	*No	Yes	Yes	Yes	Yes
10	*Yes	*Yes	No	No	No	No
11	No	No	*Yes	No	No	No
12	Yes	Yes	*No	Yes	Yes	Yes
13	No	No	No	No	No	No
14	Yes	Yes	Yes	Yes	Yes	Yes
15	No	No	No	No	No	No
16	Yes	Yes	Yes	Yes	Yes	Yes
17	Yes	Yes	Yes	Yes	Yes	Yes
18	No	No	No	No	No	No
19	Yes	Yes	Yes	Yes	Yes	Yes
20	No	No	No	No	No	No
Out of 20	16	18	18	20	20	
%	80	90	90	100	100	
Ave.	90%					

\*Errors

RAW DATA

MOLLY & KATE  
(RECOGNITION)

RECOGNITIONPHONOLOGY : Sept 1982

	KATE				MOLLY				Correct Response
	Fri 3-9	Bis	Mon 6-9	Bis	18-9	Bis	21-9	Bis	
1	*No	*No	*No	*No	Yes	Yes	Yes	Yes	Yes
2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	No	No	No	No	*Yes	No	No	No	No
4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	*Yes	*Yes	No	No	No	No	No	No	No
6	*?	No	No	No	No	No	No	No	No
7	No	No	No	No	No	No	No	No	No
8	Yes	Yes	Yes	Yes	Yes	Yes	*No	Yes	Yes
9	No	*Yes	*?	*Yes	No	No	No	No	No
10	*Yes	No	*Yes	No	No	No	No	No	No
11	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	No
12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	*?	*?	*Yes	*Yes	No	No	No	No	No
14	No	No	No	No	No	No	No	No	No
15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	No
17	Yes	Yes	Yes	Yes	*?	Yes	Yes	Yes	Yes
18	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	*No	*No	Yes	Yes	*No	Yes	Yes	Yes	Yes
20	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Out of 20	12	13	14	15	15	18	17	18	
%	60	65	70	75	75	90	85	90	
Ave.	67,5%				85%				

\*Errors

RECOGNITIONSYNTAX : Sept 1982

	KATE			MOLLY					Correct Response	
	Fri 3-9	Bis	Mon 6-9	Bis	18-9	Bis	21-9	Bis		
1	No	No	No	No	No	No	No	No	No	
2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
4	*?	No	No	No	No	No	No	No	No	
5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	Yes	*No	Yes	*?	Yes	Yes	Yes	Yes	Yes	
7	*?	*Yes	*Yes	No	No	No	No	No	No	
8	*Yes	*Yes	*Yes	*Yes	*Yes	*?	No	No	No	
9	*Yes	*Yes	*Yes	*Yes	No	No	No	No	No	
10	*No	*No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
13	*No	Yes	*?	Yes	Yes	Yes	Yes	Yes	Yes	
14	*Yes	*Yes	*Yes	No	No	No	*Yes	*Yes	No	
15	*?	No	No	No	No	No	No	No	No	
16	*Yes	No	No	*?	No	No	No	No	No	
17	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	No	
18	*No	Yes	Yes	Yes	*No	Yes	Yes	Yes	Yes	
19	*?	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	*Yes	No	
20	*?	*?	Yes	Yes	*No	Yes	Yes	Yes	Yes	
Out of 20	7	11	13	14	15	17	17	17		
%	35	55	65	70	75	85	85	85		
Ave.	56,5%				82,5%					

\*Errors