Morpheme Order Studies: A Case Study of Five Language Minority Children Acquiring English as an L2 in Irish Primary Schools

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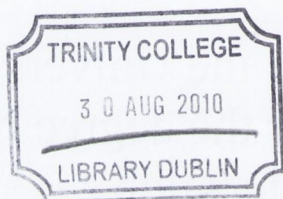
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Summary

This study looks at how five children with English as a Second Language acquire five English morphemes. The morphemes that are the focus of this study are the plural [-s] morpheme, the past tense [-ed] morpheme, the third person singular [-s] morpheme, the possessive [-s] morpheme and the progressive participle [-ing].

The five subjects are language minority children who attend a mainstream Irish primary school. They are aged between five and seven years of age. The first language spoken by the subjects is Arabic, Romanian, Hindi and Latvian. Arabic is spoken by two of the subjects.

The primary research questions which directed the course of this study are:
- What is the developmental sequence in the acquisition of five morphemes in five language minority children studying in a mainstream Irish primary school?
- What is their pattern of development?
- Is there evidence of language development over time?
- Do the five subjects in the study acquire the different morphemes in a similar order?
- Is the pattern of development similar to that reported in other Second Language (L2) studies?

A four month longitudinal case study tracks the acquisition trajectory for each of the morphemes as they are acquired and examines the stages the children go through as they acquire the language and details how they use their language as they learn. All speech utterances produced by the children during the course of the case study are transcribed using a transcript format called CHAT and analysed using tools from the CLAN programme. Both CHAT and CLAN are part of the CHILDES (Child Language Data Exchange System) database. In order to explore the acquisition trajectory for each subjects' morpheme use, a detailed analysis involved looking at 1) the correct suppliance of each morpheme in an obligatory context; 2) morphological and non-morphological error classifications; 3) morphological productivity and 4) morpheme omission.

Based on this analysis, the study made significant findings on each of the five morphemes. With regard to the plural [-s] morpheme, the study found that onset of use of this morpheme was early and that there was little variation in individual growth rates. The error which occurred with the greatest frequency was the addition of the regular plural morpheme to a mass noun.

There was significant variation in the levels of acquisition of the past tense [-ed] morpheme, however all subjects demonstrated lexical productivity, selectivity, contrastivity of use and morphological productivity. An error analysis reflected a U-shaped developmental curve, and showed that over-regularisations did not occur at the early or final stages of the acquisition process. Verbs that were most frequently inflected for past tense were irregular verbs.

Evidence from the data reveals that the plural [-s] morpheme and the past tense [-ed] morpheme share similar patterns of acquisition and error formations. Analysis of the data provides evidence to support

the dual-mechanism approach, rather than the single account. There is also evidence that noun-plural inflections are acquired earlier than past tense verbal inflections. However, there are a number of findings in this study that do not concur with previous studies. This study does not provide evidence to support the notion that the over-regularisation of noun-plurals is likely to occur earlier than the over-regularisation of verbs inflected for past tense. It also questions the notion that L2 learners over-regularise nouns marginally longer than they do verbs and questions the claim that no-change verbs are less likely to be regularised than other irregular verbs.

With regard to the acquisition of the third person singular [-s] morpheme, the data presented a challenge for the Impairment Approach, the Input-driven Approach, the Missing Agreement Account and the Implicit Rule Deficit Account. There is much evidence to support the Optional Infinitive hypothesis, however, the infrequent occurrence of null subject sentences and accusative pronouns weakens the argument slightly. The frequent occurrence of non-finite forms in place of finite forms provides evidence to support the Missing Surface Inflection hypothesis.

Regarding the acquisition of the possessive [-s] morpheme, data reveals that for four of the five subjects, the possessive [-s] morpheme is acquired in a pattern similar to that of the third person singular [-s] morpheme. However, evidence questions the extent to which a parallel occurs between the two morphemes in relation to the notion that the objective case is the default case in both nominal possessive projections and third person verbal projections.

The fifth morpheme in the study is the progressive participle [-ing]. All five subjects used the morpheme to mark future, past and present tense reference. The greater the subjects' level of acquisition, the greater the spread of the morpheme across events that mark past, future and present events. The lower the level of acquisition, the less the tendency to use [-ing] to mark future events. For all five subjects, the most inherent lexical verb class inflected with [-ing] is that of activities. Subjects with a higher level of acquisition extend the use of the morpheme slightly more to accomplishment verbs.

The pattern of development displayed by each of the five subjects in their production of the five morphemes reveals a pattern which is similar to the characteristic U-shaped pattern of development. The study shows that there is some evidence of morpheme development over the course of the study, however, this development is not significant and does not apply to all morphemes or to all subjects.

The study also found that four of the five subjects acquire the morphemes in a fairly consistent manner, with two subjects having an identical acquisition order. The common order for four of the subjects is that the plural [-s] morpheme is acquired prior to the progressive [-ing] morpheme, which is acquired prior to the third person singular [-s] morpheme. Finally, results from this study show that the children acquire the morphemes in an order very similar to that shown in previous L2 acquisition research.

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List of Abbreviations

3PS	Third Person [-s] Morpheme
4M model	4 morpheme model
AGR	Agreement
ASCII	American Standard Code for Information Interchange
AUX	auxiliary
BSM	Bilingual Syntax Measure
CHILDES	Child Language Data Exchange System
CHAT	Codes for the Human Analysis of Transcripts
KWAL	Command to search for a particular word
COMBO	Command to search for a particular word combination
CEFR	Common European Framework of Reference for Languages
CLAN	Computerised Language Analysis
DP model	Declarative / Procedural Model
DP	Determiner Phrase
DM	Distributed Morphology
ESL	English as a Second Language
ECTS	European Commission Translation Service
EU	European Union
L1	First Language
FREQ	Frequency
GEN	Genitive
IRH	Impaired Representation Hypothesis
INFL	Inflection
IRREG	Irregular
LAD	Language Acquisition Device
MLU	Mean Length of Utterance
MSIH	Missing Surface Inflection Hypothesis
MOR	morpheme
NS	Native Speaker
NNS	Non-native speaker
NP	Noun Phrase

OI	Optional Infinitive
OR Errors	Over-regularisation Errors
REG	Regular
RO Errors	Required but Omitted Errors
L2	Second Language
SLA	Second Language Acquisition
SLOPE test	Second Language Oral Production English test
TLU	Target-like Use
UCC	Unique Checking Constraint
UG	Universal Grammar
USB	Universal Serial Bus
UNS	Unstructured Natural Communication
V	Verb
VP	Verb Phrase
WR Theory	Words-and-rules Theory

1.1 Introduction

The opening chapter of this thesis is divided into two sections. The first section introduces the background to the study and provides an overview of the study itself by presenting the primary research questions which will be addressed in the body of the thesis. The context within which the study is located is also described and a brief profile of each of the five subjects is presented. The second section outlines the structure of the thesis by providing a brief outline of each chapter.

1.2 Background to the Study – The Acquisition of a Second Language

All normally developing children learn to speak the language of the environment in which they are reared and the acquisition of this language forms part of a child's general cognitive development. Language is acquired through a process called creative construction, a process whereby the child gradually absorbs the language in their environment and subconsciously reconstructs rules from the speech they hear and gradually begins to formulate their own hypotheses about the grammar of their language.

Since the 1970s, much research has been conducted on the acquisition of a second language, which, according to creative constructivism, is acquired in a manner analogous to a first language. With regard to the current study, research on second language acquisition has produced one very important finding. It has demonstrated that in the development of spontaneous oral proficiency, naturalistic acquirers of second languages pass through developmental stages that are closely similar to those observed for child first language acquisition, with approximation and the presence of errors playing a necessary role to assist the second language learner to ascend towards native language proficiency (Little, 2000, p. 3).

1.2.1 The Study

This study looks at how five children with English as a Second Language acquire five English language morphemes. For the purposes of this study, the term

language minority children will be used to refer to the subjects, in the context that the language they are speaking is a minority language in the setting of the study. A longitudinal case study, based on a corpus of spontaneous speech produced by the five subjects over a four month period, tracks the acquisition trajectory for each of the morphemes as they are acquired and looks at the stages the children go through as they acquire the language and details how they use their language as they learn. All speech produced by the subjects is transcribed and analysed using tools from the CHILDES (Child Language Data Exchange System) database. The five morphemes which are the focus of the study are the plural [-s] morpheme, the past tense [-ed] morpheme, the third person singular [-s] morpheme, the possessive [-s] morpheme and the progressive participle [-ing].

Many learning theorists and child language researchers, such as Roger Brown, have put great emphasis on the use of transcripts produced by children for understanding morphosyntactic development and consider them to be a remarkably rich source of data for testing theoretical claims, and at the same time, Brown recognised the need to specify a highly systematic methodology for collecting and analysing the utterances produced by children (MacWhinney, in press). This current study conducts a morphosyntactic analysis that has been developed within the context of the CHILDES database, the largest existing single corpus of conversational interaction, bigger than the British National Corpus, which contains five million words (MacWhinney, in press). All of the data contained in the CHILDES database are consistently coded using a common transcript format called CHAT. According to MacWhinney (in press) the overwhelming majority of new studies investigating the development of grammatical production rely on the programmes and data in the CHILDES database, and in a study MacWhinney conducted in 2002 with Catherine Snow, when they conducted a review of language acquisition articles, they found that over 2000 articles had used the database and / or its programmes.

1.2.2 Context of the Study
Since the mid-1990s, Ireland has seen an unprecedented rise in immigration, with over 540,000 people arriving in Ireland between 1995 and 2005. An estimated 8

per cent of the work force and 6 per cent of the population are now foreign-born (Gillespie, 2006). Research conducted by The Language Centre at NUI Maynooth placed the number of languages now spoken in Ireland at 167, with more recent estimates placing this number in excess of 200 (Gallagher, 2006). An estimated 6,000 children with no English have entered Irish primary schools in recent years, with concentrations of these students as high as 50 per cent in some schools (Pope, 2006) with 80 per cent of new entrants falling into the international category in one school (Fitzgerald, 2006). This has serious implications for educational policy and practice in Ireland.

These children, many of whom have limited or no proficiency in English, learn content subjects through the medium of English, and are therefore hindered in their ability to participate in educational programmes. Educational responses to this linguistic diversification have, at best, focused on the provision of English language support. Children must acquire English through mainstream content subjects on the school curriculum in what can be described as a sink-or-swim approach, or, if the number of language minority children enrolled in the school is greater then fourteen, they are immersed in mainstream education with English support provided in the form of being pulled-out from mainstream class for a limited time ranging from a daily to a weekly basis. Fortunately, the two year limit for language support which was imposed on each child was removed in 2007. However, in 2009, the government radically cut the number of teachers who provide English language assistance by 500 (O'Flynn, 2009).

1.2.3 Subjects of the Study

The five subjects in this case study are language minority children who attend a mainstream Irish primary school, and have a language other than English as their first language. They are aged between five and seven years of age. The first language spoken by the subjects is Arabic, Romanian, Hindi and Latvian. Arabic is the first language spoken by two of the subjects. Two of the subjects were born in Ireland, one subject arrived as a baby, one subject was a year old on arrival and another subject arrived at the age of three.

1.2.4 Primary Research Questions

The primary research questions which directed the course of this study are:

- What is the developmental sequence in the acquisition of five morphemes in five language minority children studying in a mainstream Irish primary school?
- What is their pattern of development?
- Is there evidence of language development over time?
- Do the five subjects in the study acquire the different morphemes in a similar order?
- Is the pattern of development similar to that reported in other Second Language (L2) studies?

1.3 Structure of Thesis

Chapter two summarises the major empirical studies that have been conducted in the area of morpheme order studies in both first and second language acquisition. It looks at some of the major theories which have been put forward as an explanation for the various morpheme order findings. In addition, the chapter looks at the criticisms of research that has been conducted in the field of morpheme order research.

Chapter three describes the methodological procedures that were followed in the selection of subjects, and the subsequent collection, transcription and analysis of data in order to accurately describe the acquisition trajectory of each of the five morphemes, as they occurred in the speech samples of the five subjects.

Chapters four and five discuss the findings of the plural [-s] morpheme and the past tense marker, while chapter six looks at the implications these findings have on Second Language (L2) acquisition theory. Chapter six also explores the psycholinguistic differences in the acquisition of plural and past tense morphology.

Chapter seven looks at the use of the third person singular [-s] morpheme. The chapter primarily focuses on the optional use of the non-finite form of the verb in an obligatory finite context and in chapter eight the prominent studies in the literature are discussed in the context of the findings from the current study.

Chapter nine explores the acquisition process of the possessive [-s] morpheme and the issue of whether or not the sporadic omission of the third person singular [-s] morpheme and the possessive [-s] morpheme are related are also discussed.

Chapter ten explores the acquisition trajectory of the progressive participle [-ing] and looks at its function as a marker of the grammatical aspect of the verb with both present and past reference and its function as marker of future tense. This chapter also looks at the role the [-ing] morpheme plays in marking the lexical aspect of the verb.

Finally, chapter eleven summarises the significant findings that emerged from the study and, in addition, shows how the findings as a whole answer the five research questions which directed the course of the study. This final chapter also discusses the contribution this study makes to the current body of research and makes recommendations for future studies in the area.

Chapter 2: Review of the Literature

2.1 Introduction

The acquisition of either a first or second language is a gradual and steady process. Some language structures, such as word order, the progressive [-ing] and the prepositions *on* and *in* are acquired relatively quickly, while structures such as the regular past tense appear comparatively late in the acquisition process. Similarity in the sequence in which certain structures are acquired led researchers in First and Second Language Acquisition to hypothesise that a 'natural sequence' in the acquisition of structures, and in particular, morphemes, exists for subjects who are learning English as a Second Language (ESL). These researchers believe that learners' age, linguistic background, nature of ESL instruction and amount of exposure to English has little effect on the morpheme sequence and that learners will acquire grammatical morphemes in essentially the same order. This research, referred to as Morpheme Order Studies, produced empirical evidence to support the claim that ESL learners acquire certain grammatical morphemes in a similar sequence and that this sequence is similar across learners from different first language (L1) backgrounds. Morpheme Order Studies formed a very important research paradigm in the 1970s and it continues to generate interest today.

This chapter looks at significant empirical Morpheme Order Studies in both First and Second Language Acquisition. It explores a number of explanations and hypotheses which have been put forward to explain the order findings and discusses the various criticisms of the studies.

2.2 Relevant Empirical Studies

The claim that L2 learners acquire certain grammatical morphemes in a similar order originated in a longitudinal study conducted by Brown (1973). This study looked at the emergence of 14 grammatical morphemes in three children learning English as a First Language and paved the way for all future research into

acquisition orders. The grammatical morphemes scored in Brown (1973) in order of acquisition were: present progressive, preposition *in*, preposition *on*, plural, past irregular, possessive, uncontractible copula, articles, past regular, third person regular, third person irregular, uncontractible auxiliary, contractible copula, and contractible auxiliary. The speech produced by the three children was recorded for two hours every week. This speech was then analysed and the morphemes which appeared in their speech were scored. The acquisition criterion set by Brown was where the morpheme was supplied in an obligatory context. Larsen-Freeman and Long (1991) describe an obligatory context as one where a native speaker would use a particular linguistic structure, such as the use of the plural marker at the end of a common English noun which is preceded by a cardinal number. Brown (1973) considered a morpheme to be acquired if it was correctly supplied in 90 per cent of obligatory contexts for three consecutive recordings. In order to establish an acquisition order, the points at which each morpheme appeared were put in sequence. The sequence for each of the children was then averaged, resulting in a common acquisition order. Commenting on the similarity with which these morphemes emerged, Brown (1973, p. 274) says "the degree of invariance is, even to one who expected a substantial similarity, amazing".

Subsequently, Brown's findings were corroborated by de Villiers and de Villiers (1973) when they conducted a cross-sectional study of twenty one English-speaking children aged between 16 and 40 months on the use of the same 14 morphemes as Brown (1973). This study used two different methods of analysis and found a morpheme order which correlated highly with that of Brown (1973).

Taking their lead from first language acquisition research, Dulay and Burt (1973) did a cross-sectional study on 145 five to eight year old Spanish-speaking children to see if a similar order could be found in Second Language Acquisition. They also investigated to see whether the errors made by L2 learners were the result of 'habit formation' or 'creative construction'. According to the 'habit formation' approach, errors in the speech of a child learning an L2 will be produced wherever the L1 and L2 structures differ, due to the L1 interfering with the L2. 'Creative construction', on the other hand, suggests that children have an innate blueprint

that helps them to subconsciously organise the structure of a language and that the acquisition of a second language by a child is a gradual process, where the child does not learn the L2 through habit, but rather constructs his /her own rules for that particular language system, guided by the features of the L2 rather than their knowledge of the L1.

While Brown (1973) used spontaneous speech to elicit speech data, Dulay and Burt used the Bilingual Syntax Measure (BSM) to elicit natural speech. When the data was analysed, it was found that only three per cent of the errors were a result of 'habit formation', while eighty-five per cent were developmental (twelve per cent were considered 'unique'), leading Dulay and Burt (1973) to conclude that children make use of the same universal language learning strategies described in the literature of first language acquisition.

This observation prompted Dulay and Burt (1973) to conduct a second cross-sectional study to look at the acquisition order of certain language aspects for children learning English as a second language to ascertain if there was a common sequence with which children learning a second language acquire certain grammatical morphemes. Their subjects for this second study consisted of three different groups of children from diverse English language learning environments, totalling 151 Spanish-speaking five- to eight-year-old children, differing in their amount of exposure to English. The study focused on the acquisition of eight grammatical morphemes, which were a subset of the fourteen morphemes in Brown's 1973 study[1]. As in their first study, samples of their speech were collected using the Bilingual Syntax Measure. Each of the eight morphemes that were produced by the subjects and supplied in an obligatory context was scored on a three point scale using the Group Score Method in the following manner: if the grammatical morpheme was required but omitted altogether, it scored 0 point, a grammatical morpheme that was supplied but was not well formed scored 0.5 points and a correct grammatical morpheme counted as 1 point if it was supplied in its correct form in an obligatory context. Each score was then averaged and put

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[1] The 8 morphemes in Dulay and Burt's study were: plural, present progressive, copula 'be', auxiliary 'be', articles, irregular past, possessive and present singular -s.

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in decreasing order of those morphemes that were supplied most frequently to those morphemes that were supplied least frequently and an acquisition sequence was established.

The results of the research showed that a common acquisition order exists for certain morphemes for children learning English as a Second Language. The morpheme order for the 3 groups in the 1973 study correlated highly with each other, however, the order they found differed from the order found by Brown (1973) and deVillier and deVillier (1973). Dulay and Burt accounted for this by explaining that the subjects in their study were older, and therefore cognitively and conceptually more aware than the younger L1 subjects in Brown (1973) and de Villier and de Villier study (1973).

Dulay and Burt (1974b), seeking to establish if there might be a universal order in which L2 learners acquire certain structures, regardless of the learners' L1, compared the suppliance of eleven grammatical morphemes in obligatory contexts acquired by 60 Chinese-speaking and 55 Spanish- speaking 6-8 year old ESL children in the USA. As in their previous study, they used the Bilingual Syntax Measure to elicit natural conversation. They found that the order of acquisition of the eleven morphemes produced by the Spanish and Chinese children was virtually the same.

As a result of analysing speech of 421 ESL children in the United States and speech produced by the Spanish and Chinese children in their 1974 study, Dulay and Burt started grouping the morphemes into four different hierarchies. Morphemes that emerged at a similar time in the acquisition process were grouped into the same hierarchy. Thus, Acquisition Sequences gave way to Acquisition Hierarchies. The study revealed that the acquisition hierarchies for all three groups were very similar.

So far, research had only been conducted on children learning English as a first or second language. However, results obtained in these studies prompted researchers in the field to question whether a similar order could be found for adult ESL learners. Bailey, Madden and Krashen (1974) attempted to answer two questions

in a cross-sectional study of 73 adult ESL learners (aged between 17 and 55) from different language backgrounds, with differing amount of English exposure, to see if adults learn grammatical morphemes in a particular sequence and, if they do, is the sequence the same as the sequence established by Dulay and Burt (1973) in their child studies. Adopting the same approach as Dulay and Burt (1973), Bailey et al. (1974) used the Bilingual Syntax Measure to elicit natural speech data and looked at the same eight morphemes. The same methodology was used to score and analyse the data. In order to test their first hypothesis, that adults learn grammatical morphemes in a particular sequence, the group was divided into Spanish and non-Spanish speakers and a significant correlation was found between the two groups. In order to test the second hypothesis, the acquisition order (or 'difficulty order' as it was referred to by Bailey et al.) was compared with the accuracy order established by Dulay and Burt (1973) and a significant correlation was found with 2 out of 3 of Dulay and Burt's groups. Bailey et al. (1974) also corroborate what Dulay and Burt (1973) had established; that the order did not correlate with that of Brown (1973) or de Villiers and de Villiers (1973). Bailey et al. (1974) also confirmed that the linguistic background of the subjects did not appear to influence the acquisition order obtained.

Following on from this study, two questions remained. Would the acquisition order differ if an elicitation method, other than the Bilingual Syntax Measure, was administered and could results obtained from data collected from a means other than the BSM help explain the acquisition order obtained using the BSM method.

These two issues were addressed by Larsen- Freeman (1975) in a study administered to 24 adults, comprised of six speakers from 4 different L1 backgrounds (Arabic, Japanese, Persian and Spanish). As previous studies (Dulay and Burt, 1973, 1974(b); Bailey, Madden and Krashen, 1974) had looked at speech production, Larsen-Freeman (1975) tried to find an adult morpheme accuracy order obtained by tasks other than speech production. Five different data collection procedures were used: the BSM, a picture-cued sentence-repetition test, listening comprehension test, a modified reading cloze passage and a writing task. Each data collection procedure involved a different language skill: reading,

writing, speaking, listening and imitating. The study looked at ten of the eleven morphemes studied by Dulay and Burt in their 1974 study: progressive [–ing], auxiliary [-s], short plural [-s], long plural [-es], third person singular [-s], regular past, irregular past, possessive [-s], singular copula and articles. The ten grammatical morphemes supplied in obligatory contexts were scored using the Group Score Method (Dulay and Burt, 1974b) and scored on a three point scale. Orders were found to be consistent for these L2 learners, despite their different L1 backgrounds.

Other researchers in the area of second language acquisition, anxious to find similar order sequences, embarked on their own morpheme studies, each employing more diverse means to test the order.

Building on the Bailey et al. (1974) study, Krashen, Sferlazza, Feldman and Fathman (1976) studied 66 ESL adults from 13 different L1 backgrounds, and used the Second Language Oral Production English (SLOPE) test to elicit speech samples. The SLOPE test is a series of pictures and accompanying questions, designed to create obligatory contexts for target items. Their results confirmed those of Bailey, Madden and Krashen (1974), Fathman (1975) and Dulay and Burt (1974b), namely that a common order does exist for adult and child ESL learners, with L1 background having no effect on the acquisition order. Comparing subjects in their group who received formal ESL instruction with those subjects who were learning English in an informal language environment, Krashen et al. (1976) also confirmed that the order is not affected by the language learning environment.

Based on a review of more than a dozen morpheme order studies, Krashen (1977) assumed a 'natural order of morphemes', placing items that were accurately supplied in obligatory contexts in boxes higher up than boxes which contained morphemes which were not correctly supplied in obligatory contexts.

Lightbown (1987) examined the acquisition of six morphemes produced by 175 French-speaking ESL children aged between eleven and seventeen in Canada. The order obtained by Lightbown (1987) differed from that of Dulay and Burt (1973)

and Krashen (1977), with the auxiliary *be* being acquired before the plural [–s] and the progressive [–ing].

Andersen (1978) studied 13 grammatical morphemes contained in written samples obtained from a cross-sectional study of 89 Spanish ESL learners, with a criterion level of correct use set at 80 per cent. Andersen's study places irregular past before regular past but individual scores determined that irregular past and regular past were unordered with respect to each other. Andersen (1978) concludes his paper by stating that accuracy orders are the surface manifestation of more deeply seated underlying factors, such as syntactic category, morpheme type, input frequency, L1 similarity, syntactic and semantic complexity and perceptual saliency.

Hakuta (1976) collected spontaneous speech samples in a two-year longitudinal study of a five year old Japanese girl, Uguisu, studying English as a Second Language in eastern Massachusetts. His study looked at the acquisition order of seventeen morphemes. The scoring method and 90% acquisition criterion was taken from Brown (1973). In this study, there was a low correlation between the order obtained for Uguisu and the order obtained by Dulay and Burt: the plural [–s] came last in the sequence rather than first (Dulay and Burt, 1973) or fifth (Dulay and Burt, 1974b) and the article also appeared later than in other studies. However, in light of another study which was administered to 800 Japanese ESL learners, it is likely that the results from Hakuta's subject were idiosyncratic (Dulay and Burt, 1982).

2.3 Explaining the Order Findings

These early morpheme studies revealed very interesting findings; however, they were in need of a theoretically motivated explanation. Over the years, several explanations and hypotheses have been proposed in the literature in an attempt to explain the order findings. The theoretical perspectives considered here include L1 interference, conditions of language exposure and methods of instruction, the saliency explanation, Slobin's operating principles, the creative construction explanation, frequency of input, the Input Hypothesis, the Input and Interaction

Hypothesis, the processability explanation, the Aspect and Discourse Hypothesis, the 4M model explanation and the Implicational Model. The claims made by each of these will be discussed in greater detail in the sections which follow.

2.3.1 L1 Interference

Some researchers, such as Krashen (1988), White (1985) and Lightbown (1983) explain morpheme orders by placing the burden on First Language Acquisition.

Krashen (1988) examines where the L1 fits in the theoretical model for SLA and summarises the research findings in three points:

1. First language influence appears to be strongest in complex word order and in word-for-word translations of phrases
2. First language influence is weaker in bound morphology
3. First language influence seems to be strongest in "acquisition poor" environments

(Krashen, 1988, pp. 65-66)

Wode et al. (1978) show evidence of L1 interference in their study which looked at the acquisition of English morphemes by four German-speaking children. Analysing the data which they collected provided them with evidence that the children's knowledge of the German plural was interfering with their acquisition of the English plural, thus leading them to claim that L1 is an integral part of acquiring L2 inflections. Wode (1978) also saw evidence of L1 interference when his subjects were applying the phonological rule of their L1, which calls for final fricatives and plosives to be voiceless, and as a consequence, the [-z] and [-ez] were the last two allomorphs to appear when learning the plural; in English, final fricatives and plosives may be either voiced or voiceless.

Lightbown (1983) also provides evidence of L1 interference when she conducts a longitudinal study on thirty-six 11 to 17 year old French Canadians. The subjects in this study differ from subjects in previous morpheme studies in three areas. While the subjects in previous studies were either young children or adults, Lightbown's subjects were adolescents whose L1 was French with limited exposure to English outside of their ESL class. Speech data was elicited using an

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oral communication game in the form of a picture and card game. Each subject played the game three times, with an eight month interval between playing the first and second game and a five month interval between the second and third game. The subjects were in grade 6 when the first recording took place, and in grade 7 for the second and third recording. Due to the game-like nature of the task, it was expected that the subjects would be less concerned with the correctness of language form and more concerned with the notion of communicating the information depicted by the picture. Although the pictures were designed to elicit the [–s] and [–ing] morphemes, when the data was analysed after the first game, it was found that very few obligatory cases had been created for two of the [-s] morphemes, the possessive [–s] and the third person singular [–s]. Some slight changes were made in the subsequent games in order to create more obligatory occasions. Five categories of the [–s] morpheme[2] and verbs with the [–ing] inflection were analysed. The first observation made was that subjects showed a tendency to add the [–s] morpheme to a clause initial noun or pronoun, and while 'is' after a noun was almost always appropriate, [-s] after a clause initial noun or pronoun was almost always inappropriate, such as 'a girl's have three balloons' (Lightbown 1983, p. 229). A second observation, which contradicts results from other morpheme studies, relates to the increase in the frequency of uninflected verbs together with a decrease in the frequency and accuracy of the [–ing] verbal inflection, with students going from producing correct utterances such as *'he's taking the cake'* to producing incorrect utterances such as *'he take a cake'* (Lightbown 1983, p. 231). Most other morpheme studies confirm early accuracy and frequent use of the *–ing* verbal inflection. Lightbown (1983) explains her findings by offering the hypothesis that in grade 6, subjects equate the [–ing] form with the simple present form in French, using the [–ing] form where they would normally have used the simple present form in French. This led to the overuse of the [-ing] inflection, as subjects were using the [–ing] form when the simple present would have sufficed. The decline in [–ing] frequency and accuracy occurred when the simple present was introduced, and created confusion for the subjects. The accuracy level for the plural [–s] and possessive [–s], despite having a high frequency in their ESL course book and class, was low, when compared to

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[2] Copula, auxiliary in progressive construction, 3rd person singular, plural and possessive.

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other morphemes studies (Lightbown 1983, p. 237). Lightbown (1983) attributes this to L1 interference, as this plural [–s] indicator in French is silent. The low use of the possessive [–s] in the subjects' English data and the subjects' preference to use *of* instead, is also consistent with the subjects' L1, as French uses a prepositional phrase to express the possessive.

Wode (1978) points out that the problem is not so much whether there is L1 interference, but rather, whether it is possible to determine at what stage of L2 development, and to what extent, this interference will occur. Having established that a child does rely on prior linguistic knowledge, Wode (1978, p. 111) states:

> What is fascinating about this insight is not that L2 children should rely on prior L1 knowledge, but that, apparently, they do so in highly restricted ways, i.e., only at specific points in their development are they liable to fall back on L1. Apparently, specific conditions relating to the structure of the languages involved have to be met for interference from L1 to take place at all.

For interference to take place, the L1 and L2 structures must share a crucial similarity measure, although it is unknown what constitutes this crucial similarity measure (Wode, 1978, p. 116).

Zobl (1982) looks at the influences the learners' L1 has on developmental sequences and identifies two areas where L1 influence can have an affect on the sequence. The learners' L1 can affect the rate of progress with which the learner traverses the developmental sequence and it can affect the number of stages the learner must go through in order to acquire a particular sequence. To explain this, Zobl (1982) uses zero contrast, where the L2 learner has zero knowledge of a particular rule because it is not found in the L1 of the learner, and categorical congruence, where both the L1 and the L2 have comparable categories. The learner takes a longer amount of time to achieve target-like use of the structure if there is zero contrast, than if there is categorical congruence. Where categorical congruence exists, Zobl (1982) argues that the delay is not in the emergence of the L2 category, but in the restructuring which the learner needs to do before

progressing onto the next structure in the developmental sequence and proposes the following hypothesis:

> L1 influence may modify a developmental continuum at that point at which a developmental structure is similar to a corresponding L1 structure and where further progress in the continuum amounts to an increase in complexity beyond that of the L1 structure.
>
> (Zobl, 1982, p. 180)

After this point, Zobl (1982) says that there are three possible outcomes. As a result of the fossilising effect of the L1, there might be a delay in the necessary restructuring which the learner must make in order to progress along the continuum. A second possibility is that the developmental structure currently being used by the learner might be used in other environments. A final possibility concerns the way the learner will move along the continuum. The learner will try to move along the continuum in such a way so that each new developmental form will be as structurally consistent as possible with the preceding developmental form, seeking out the most minimal rule change possible when filtering input.

White (1985) explores what happens when a parameter which is activated in the L1 is not in operation in the L2. The particular parameter which is the subject of White's study is the pro-drop parameter, which is activated in Spanish but not in English. White (1985) investigates two hypotheses by exploring whether Spanish ESL learners carry over this parameter when learning English, thereby creating transfer errors, and if there are a number of properties relating to a parameter, as in the case of the pro-drop, whether all of those properties are dropped when there is evidence of non-occurrence of one of these properties. The subjects of this study were 73 adult ESL learners in Montreal, ranging from level 1 to level 5, of whom 54 were native Spanish speakers and 19 were native French speakers who acted as the control group in the study. The results of the study demonstrate that Spanish ESL learners, particularly those at an earlier stage in the acquisition process, do carry over the pro-drop parameter, leading to transfer errors, and that certain aspects of the parameter are more subject to transfer than others.

A number of studies have investigated whether there is evidence of language transfer of native speakers of Chinese learning English as an L2. Goad, White and Steele (2003) suggest that the failure of native Chinese speakers to supply the English past tense inflectional morphology and the third person singular [-s] morpheme can be attributed to the difference in prosodic features of English and Chinese inflectional patterns. Lardiere (2003a) echoes this, suggesting that the failure of native Chinese speakers to supply past tense morphology when acquiring English can, in part, be attributed to the L1 constraint against word-final consonant clusters. Similarly, Bliss (2006, p. 14) claims that the absence of the plural feature in Chinese can be recognised as a key factor in determining the constraints on English language production, for native speakers of Chinese, learning English as an L2.

However, despite these studies, Gass and Selinker (2008, pp. 123-124), citing McLaughlin (1978), claim that language transfer does not take place unless the child is isolated from peers of the target language, explaining that if the child has target-language peers, there is a greater social context where the child learns the L2 rules as if the L2 was their first language, with no language transfer occurring. However, McLaughlin, referring to evidence produced by Wode (1978) says that a child is more likely to resort to L1 language structures when confronted with difficult language structures in the L2.

2.3.2 Conditions of exposure / Methods of instruction

Pica (1983) looked at the effect different conditions of exposure and different methods of instruction have on morpheme acquisition. By conducting a study which looked at the acquisition of morphemes by three different sets of Spanish-speaking adult ESL learners, each group having different conditions of exposure to English, Pica (1983) showed how these different conditions do not significantly alter the acquisition order in which grammatical morphemes are produced. Each group, consisting of six subjects, learned English either by formal instruction only, in a naturalistic setting or a combination of both. Speech data from each subject consisted of hour-long taped conversations between the subject and the researcher on a variety of topics, such as weekend activities, family and friends and future plans. Data was then analysed in order to determine the percentage of suppliance

of particular morphemes[3] in obligatory contexts, percentage of target-like use (TLU) for particular morphemes[4], natural order of morpheme ranking based on suppliance in obligatory contexts, proportion of morpheme overuse and proportion of target-like and non-target-like expressions of the noun plural. With regard to morpheme rank order, a high correlation was found between all three groups and Krashen's natural order. The effect of the different types of exposure to English on the subjects' morpheme acquisition was made clear by analysing the errors produced by the learners in each group. While the language produced by all three groups had evidence of oversuppliance of morphemes in inappropriate contexts and omission of morphemes in required contexts, the oversuppliance of morphemes was more common in the instruction-only group and the omission of morphemes was more common in the naturalistic group (Pica, 1983). This is hardly surprising. Pica (1983) points out the fact that morphological features are more salient to the learner who is exposed to formal instruction rather than the learner who is exposed to English in a naturalistic environment, where the emphasis is more on communication and less on form.

2.3.3 Saliency Explanation

Since the mid-1970s, researchers have identified a number of factors of the target language that affect the comprehensibility of the language (and its morphemes) and consequently the ease or difficulty with which a particular language structure will be acquired. Examples of such factors include perceptual saliency, frequency, syntactic and semantic complexity.

Goldschneider and DeKeyser (2001) conducted a multiple regression meta-analysis on twelve research studies that were conducted between 1973-1996 to determine whether the morpheme acquisition of six commonly researched morphemes could be explained by a combination of five determinants, all of which are properties of the morpheme; perceptual salience, semantic complexity,

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[3] -ing, plural -s, singular copula, progressive auxiliary, article, irregular past, regular past, 3rd person singular and possessive -s.
[4] -ing, plural -s, singular copula, progressive auxiliary, article, irregular past, regular past and 3rd person singular.

morphophonological regularity, syntactic category and frequency. Their meta-analysis pools data from 12 studies, with data from 924 adult and child language learners from 29 different L1 backgrounds. Their hypothesis, that a large portion of the variance of the acquisition order could be explained by a combination of these determinants, was supported. They argue that this is not a set of five heterogeneous variables, saying that all five of these predictors constitute some form of saliency. Perceptual saliency is the most obvious determinant that has a salient property. The others are more obscure. The salience of the form-meaning relationship is an aspect of both morphophonological regularity and semantic complexity. With syntactic category, due to their distributional variance, free morphemes are more salient than bound morphemes and lexical morphemes are more salient than functional ones. And finally, the higher the frequency of the morpheme, the more numerically salient that morpheme will be. Each of these five determinants will be discussed in detail in the sections which follow.

Many researchers (Brown, 1973; Hakuta, 1976; Larsen-Freeman, 1976; Henrichsen, 1984, Dulay and Burt, 1978) propose that the ease or difficulty with which a particular structure is perceived can help explain the morpheme acquisition order; the proposal being that the more perceptively salient a morpheme is, the earlier it will be acquired by the L2 learner. Brown (1973, p. 409-410) breaks perceptual saliency down into "such variables as amount of phonetic substance, stress level, usual serial position in a sentence, and so on". Perceptual saliency is a factor of a number of different variables, such as the number of phones in the morpheme, the presence or absence of vowels in the morpheme form (syllabicity), the stress level, the serial position of the morpheme in the sentence, and the sonority of the morpheme. The basic assumption made by Hakuta (1976) and Larsen-Freeman (1976) is that perceptive saliency makes the input more comprehensible and, as a result, is more likely to become part of the learner's intake. Morpheme markers that are not perceptively salient are the possessive and plural [–s], the third person regular and the past regular. As articles are syllabic, they are more perceptively salient, and hence easier for the L2 learner to acquire. Similarly, the progressive [-ing], being more salient than the possessive [–s], should be acquired earlier.

Larsen-Freeman (1976) mentions contraction as a possible feature which has a role to play in the acquisition order of morphemes and Hakuta (1976) supports this notion and argues that a root change such as *go/went, do/did, am-are-is/was, don't/didn't, have/has* is more salient than the simple affixation of a morpheme, such as the plural [-s] or the past [-ed] and argues that the more overtly marked a morpheme is, the earlier it will be acquired. Out of the 14 morphemes which Hakuta (1976) studied, *'gonna'* was the last morpheme to be acquired by the learner.

In her study on the effect of how sandhi-variation, a factor of the perceptual saliency of a morpheme, can affect the comprehensibility of English, Henrichsen (1984) highlights the need to distinguish between input, the language which surrounds the language learner, and intake, the actual portion of this language that the learner can comprehend, as the intake can be affected by a number of factors, one of which she claims is sandhi-variation. Sandhi-variation, which is found in spoken English, refers to phonological modifications, such as contraction, assimilation, mutation and contraction, of morphemes. Henrichsen's hypothesis is that the more proficient the language learner is, the less their comprehensibility of the language that would be affected by sandhi-variation. The results of her experiment supported the hypothesis.

Semantic complexity, also put forward as a factor which effects morpheme acquisition, refers to the number of meanings attached to a particular morpheme form. The plural marker [–s], for example, expresses number, whereas the third person singular [–s] marks number, person and present tense. According to Brown (1973) semantic complexity plays a role in determining the acquisition order.

Morphophonological regularity of the morpheme refers to the number of phonological variations a particular morpheme might have as a result of the morpheme's phonological environment and the homophony of a morpheme with other grammatical morphemes. The determiner *a* becomes *an* before vowels, the plural [-s] morpheme and the possessive [-s] marker can have three different

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phonetic realisations /s/, /z/ or /iz/ and the past tense [-ed] morpheme may be realised as either /t/, /d/ or /id/, depending on its phonological environment. The morpheme that marks plural, possessive, and the third person present tense are all homophonous, as are the contracted auxiliary and the contracted copula. The more phonologically regular a morpheme is, the earlier it should be acquired by the learner (Cook, 1993) and morphemes that are homophonous with other morphemes should be acquired later (Goldschneider and DeKeyser, 2001).

The syntactic category of the morpheme is also seen to have a role in determining the acquisition order. Syntactic Category refers to either a phrasal category, such as a noun phrase (NP), a verb phrase (VP) or a prepositional phrase, and a lexical category, such as a noun or a verb. Phrasal categories can be further decomposed into smaller syntactic units while lexical categories cannot be further decomposed. According to Brown (1973), the syntactic complexity of the morpheme was a significant determinant of the acquisition order. Krashen, Madden and Bailey (1975) examined the acquisition order of NP-related and V-related morphemes. Basing their analysis on Functional Category Theory, Zobl and Liceras (1994) reanalysed two L1 early morpheme studies (Brown 1973; de Villiers and de Villiers 1975) and four L2 early morpheme studies (Bailey, Madden and Krashen, 1974; Larsen-Freeman, 1975; Krashen, 1977 and Andersen 1978) and proposed category membership as a way of explaining morpheme acquisition order. Zobl et al. (1994) classified morphemes according to their syntactic category, identifying them as either lexical or functional. These categories were further subdivided, according to whether they were free or bound morphemes. A pattern emerged in which lexical free morphemes were acquired before lexical bound morphemes and functional free morphemes were acquired before functional bound morphemes.

The fifth and final determinant which Goldschneider and DeKeyser (2001) considered as part of their saliency explanation was that of frequency. Frequency refers to the number of times a given structure appears in the learner's linguistic environment. The higher the frequency of the morpheme, the earlier that particular structure should be acquired by the learner. The issue of frequency will be discussed in greater detail in section 2.3.6.

Goldschneider and DeKeyser (2001) conclude their meta-analysis by saying that the data used in their meta-analysis support a connectionist view of language learning, based on inductive learning rather than guided by innate principles.

2.3.4 Slobin's Operating Principles

Drawing evidence from a number of language studies, Slobin (1973) explained the common acquisition order by proposing the following seven 'operating principles' which he considers to be cognitive prerequisities for the development of grammar:

> pay attention to ends of words
> the phonological forms of the words can be systematically modified
> pay attention to order of words and morphemes in an utterance
> avoid exceptions
> avoid interruption and rearrangement of linguistic units
> underlying semantic relations should be marked overtly and clearly
> the use of grammatical markers should make semantic sense

These operating principles are used by Slobin (1973) to refer to the general strategies or "self-instructions" which children use in L1 acquisition to segment and analyse the linguistic information from their language environment, which account for the regular patterns in the language they produce.

Andersen (1984) builds on Slobin's principles and describes what he calls 'macro principles', where each principle relates to a group of principles originally proposed by Slobin. It is Andersen's one-to-one principle, regarding the way learners learn both function and form, stating that learners seek to map a single meaning onto a single invariant linguistic form, that has received the most attention.

However, operating principles are not free from criticism. Wode (1978, p. 116) makes the following criticism of Slobin's operating principles:

> It will not do to come up with principles such as, for example, Slobin (1973) has suggested for L1 acquisition. What use is there to tell the child to "pay attention

to the end of words"? Such principles / advice will have to be ordered developmentally if they are to allow both child and investigator to use them as guidelines for progress. Not until we have this type of information will we be equipped to take a stand on.........whether all children are universally endowed with, or have at their disposal, the same set of principles, processes, and strategies.

They also come under fire from Ellis (2000) for the following three reasons. There is an absence of a theoretical framework which can explain where the principles come from. It is not known how many operating principles are needed to develop the learner's interlanguage and the operating principles that have been identified are not mutually exclusive.

2.3.5 Creative Construction Explanation

The creative construction explanation posits that the processes involved in the L1 and L2 acquisition process are similar. It was put forward by Dulay and Burt (1974a) who suggest that children have an innate blueprint that helps them to subconsciously organise the structure of a language in a manner analogous to their L1. It explains that the acquisition of a second language by a child is a gradual and creative process, where the child does not learn the L2 through habit, but rather reconstructs rules from the speech they hear in order to formulate certain hypotheses about the L2. These formulations are based on the L2 rather than their knowledge of the L1. This internal representation develops gradually in predictable stages, all the time heading towards native-speaker competency.

2.3.6 Frequency Explanation

A great deal of empirical study has been done on the role of frequency and its effect on the acquisition order of morphemes. The frequency of occurrence of a given structure refers to the number of times this structure appears in speech addressed to the learner. It has been assumed that the more a learner hears a given structure, the sooner he will acquire that structure.

The notion of learners' input frequency was first put forward by Larsen-Freeman (1975) as a possible reason to explain why the passive morpheme was consistently among the lowest ranked morpheme in her 1975 study. Larsen-Freeman (1975, p. 419) speculates that this might be due to the relative infrequent use of the passive morpheme by native speakers of English. Trying to find an explanation for the observed order found in her own 1975 study and that of Dulay and Burt (1973, 1974b) and Bailey, Madden and Krashen (1974), Larsen-Freeman did a subsequent study in 1976, where she considered a number of explanations that might give rise to the common morpheme order. Semantic, syntactic and phonological complexity, use of similar ESL textbooks among learners, shared psychological experience, 'operating principles', perceptual saliency and frequency of occurrence were considered as possible factors which might influence and thus explain the common order (Larsen-Freeman, 1976). However, all factors, apart from frequency of occurrence, were disregarded. This was due to the significant correlation which was found between the morphemes in these studies and the frequency of occurrence of the same morphemes from the parental speech addressed to the three children in Brown's 1973 study, suggesting that the frequency with which these morphemes occurred in the speech of native speakers might be one factor influencing the order. The tentative conclusion was that:

> morpheme frequency of occurrence in native-speaker speech is the principle determinant for the oral production morpheme order of second language learners.
>
> (Larsen-Freeman, 1976, p. 132)

Other people who have looked at input frequency and learning include Wagner-Gough and Hatch (1975), who used speech data from another researcher, Huang, of a five-year-old Chinese ESL learner called Paul and observed that speech produced by Paul contained chunk-learned utterances borrowed from his English language input, such as 'are you ready?', 'very good' and 'I see you'. Interrogatives, such as 'what's this?' 'Where's the NOUN?' and 'Is this a NOUN?', accounted for 40% of Paul's input and Paul quickly started producing sentences such as *'what's this?' 'table?'* and *'where's the NOUN?'*. The results are similar for the production of imperatives, which accounted for 46% of his input, and statements, which accounted for 14% of his input. However, Wagner-

Gough and Hatch (1975) did observe that although two types of interrogatives were used with equal frequency in Paul's input, he did not produce questions that required the '*be*' inversion, such as '*is this a NOUN?*', instead Paul produced '*This N?*' using utterances such as '*This ball?*'. Wagner-Gough and Hatch (1975) explain this by the fact that '*be*' does not have any semantic value and the number of different forms of '*be*' makes it complex for the learner to acquire.

In an attempt to ascertain the relationship between the formal language input in the classroom and second language acquisition, Hamayan and Tucker (1980) studied three native-speaking French teachers from two immersion schools, teaching French to native speakers of English who were studying French as a second language and three teachers teaching French to native speakers of French in an all French school. The aim of the study was to examine the characteristics of the language used by teachers when communicating with their students as well as the frequency with which teachers produce specific syntactic structures when addressing second language learners in the classroom.

A total of 30 hours of material was recorded, transcribed and analysed. The study focused on nine structures, such as indirect questions, the subjunctive, contractions, prepositions, adjective gender agreement and the reflexive. The form in which each of the nine structures appeared in the data was noted and the frequency with which each form occurred in the speech of the teachers was measured and the structures were ranked according to their frequency of occurrence. The frequency of occurrence of the nine structures in the teachers' language was then correlated with the children's correct production of these nine structures. The results of the study confirm their hypothesis that frequency of occurrence of certain syntactic structures in teachers' speech correlates with the production of these structures by learners.

Theakston, Lieven and Tomasello (2003) put the notion of input frequency forward as a possible explanation for the omission of the third person singular [-s] morpheme, where non-finite verb forms frequently occur in obligatory finite contexts. An example of such a case would be *he eat*, where the sequence *he eat*

could appear in the child's input outside the matrix clause in the form of *what will he eat*. When questions are formulated in the child's input, the subject, such as *he* or *she*, is immediately followed by a non-finite form, resulting in a string such as *she go* occurring in the language learner's input.

Other studies that favour input frequency in second language acquisition are Andersen (1978), Gass and Lakshmanan (1991), Gass and Selinker (2001) and Gass and Mackey (2002). Andersen (1978, p. 276) states that morphemes occuring more frequently in the input will be learned earlier than those occuring less frequently. Gass and Selinker (2001, p. 402) point out that 'something which is very *frequent* in the input is likely to be noticed.....at more advanced stages of learning.....something that is unusual because of its *infrequency* may stand out for a learner'.

Despite these encouraging findings, the frequency of occurrence is not supported by everyone and has been dismissed as early as the early 1970s. Brown (1973) did not support the belief that frequency influences acquisition order when he found that the structures learnt early were not the structures used most frequently in the parental speech of the children. The notion of input frequency was also refuted by Dulay, Burt and Krashen (1982), citing examples of L2 structures uttered by learners that the learner would never hear uttered in their language environment. Dulay et al. (1982) also support Brown (1973) when they say that grammatical items, such as plural markers and definite articles, occur much more frequently than content words in the language environment of the learner, yet these structures emerge late in the language learning process.

In her study of adolescent French Canadians learning English in Quebec, Lightbown (1983) concludes that there is no direct relationship between the frequency with which certain grammatical morphemes occur in the classroom and the frequency or accuracy of these morphemes in the speech of her subjects. She observed that although the verb 'have' was one of the most frequently used verbs by the ESL teacher, it was not used by any of the subjects in the first of the three stages recorded for the study. However, Lightbown did show a delayed frequency

effect, explaining that frequency and accuracy should not be measured at the same point in time, because there is evidence of a time-lag between the input and the appearance of the linguistic feature being investigated.

While Larsen-Freeman and Long (1991) do admit that frequency of occurrence plays an important role in explaining the order findings, they do, however, list three weaknesses with this approach. Firstly, frequency of input is subject to L1 influence. Secondly, as with Lightbown (1983), they highlight the fact that most studies compare frequency and accuracy relationships at the same point in time, yet there is reason to expect that there is a delayed effect for frequency, meaning that time-lagged research designs would be more appropriate and thirdly, the results of the studies are correlational only and based on the fairly weak Spearman rank order correlation (Larsen-Freeman and Long, 1991, p. 134). They do adopt a more cautious viewpoint saying that frequency of occurrence is not the basis for causal claims:

> despite these encouraging findings, a few qualifications are in order. First, advocates of a frequency explanation have to account for the fact that articles, which are by far the most frequent item in (ESL) input, are relatively late acquired, and, like other items in accuracy orders, clearly subject to L1 influence. Clearly, in other words, no claim is being made that frequency is the only factor at work.
>
> (Larsen-Freeman and Long, 1991, p. 134)

Ellis (2002) adopts a similar approach when he demonstrates that frequency is a vital component in many theoretical approaches to language acquisition but cautions that it is not a sufficient explanation and acknowledges that it is the interaction of frequency with other factors such as those identified in Goldschneider and De Keyser (2001) - perceptual salience, semantic complexity, morphophonological regularity, L1 transfer and syntactic category - that determine the acquisition process. Similarly, Ellis (1994, p. 273, emphasis in original) claims that:

> overall there is little evidence to support the claim that input frequency affects L2 acquisition, but there is very little evidence to refute it. Perhaps the safest conclusion is that input frequency serves as *one* of the factors influencing

development, often in association with other factors, such as L1 transfer and communicative need.

2.3.7 The Input Explanation

Krashen puts the input explanation forward in an attempt to explain the acquisition order, basing it on five inter-linked hypothesis: the input hypothesis, the acquisition/ learning hypothesis, the natural learning hypothesis and the affective filter hypothesis. Krashen (1985) claims that comprehensible input is sufficient to enable learners access the forms and meanings of the L2. This claim is placing comprehension at the very centre of the language acquisition process, stating "perhaps we acquire by *understanding* language that is 'a little beyond' our current level of competence" (Krashen, 1988, pp. 102-103). Thus, the learner will acquire a language by progressing from the learner's current level i to the next stage of development $i + 1$ simply by being exposed to input that contains structures one stage beyond the learner's current level of competence. Krashen (1988) stresses the role caretaker speech has in providing input to the language learner at the $i + 1$ level. This explanation is linked to the affective filter hypothesis as Krashen (1988) says that if the motivation or the attitude of the learner is not optimal, then input may be blocked from entering the Language Acquisition Device (LAD) by the affective filter. Thus, according to this model, motivation and attitude are prerequisites to language learning.

However, support for Krashen's Input Hypothesis is limited and White (1987), Pienemann (1987) and Gass (1988) all highlight the inadequacies of Krashen's notion of comprehensible input. Krashen's theory is criticised because it is based on the concept of some linguistic unit 'i' and 'i+1', without there being any precise way of knowing what the defining characteristics of these particular stages are, or no explanation about how we might go about determining a learner's i level (Pienemann, 1986; Gass, 1988).

Pienemann (1987) also cites evidence from Bever (1981) and Bloom and Lahey (1978) which claim that language production and language comprehension are seen to develop as two separate skills, with the possibility that children may even

produce language first, before being able to understand what it actually is that they are producing; contradicting Krashen's claim that language is acquired through comprehension.

A further criticism of Krashen's theory relates to his notion of comprehensible input. Gass (1988) says that input can be comprehended at different levels and should be treated as a continuum, rather than a dichotomous variable as suggested by Krashen.

Similarly, White (1987), while recognising the value that the Input Hypothesis has, in so far as it highlights the fact that language acquisition must be defined in terms of the learner and his current stage in the acquisition process and that it draws attention to the role which input has, she finds a number of weaknesses with Krashen's approach. Her first criticism concerns Krashen's notion that learners understand input which is slightly beyond their current stage, i, by means of context and other extra-linguistic cues. However, White argues not all comprehensible input is dependent on extra-linguistic cues or contextually dependent, and that there may be some other factor, such as grammatical aspects being internally driven, that can facilitate input becoming comprehensible. White (1987) points out that while there are several 'triggers' in the language acquisition process which can bring about grammar change in the learner, such as cognitive, maturational, semantic or linguistic triggers, Krashen's Input Hypothesis only recognises one type of trigger; the non-linguistic one. Her second criticism relates to the role which Krashen places on simplified input, as provided by means of foreigner-talk or caretaker speech. White (1987) argues that dependency on this type of simplified input could be detrimental to the language learner, rather than beneficial, as the caretaker might underestimate the learner's language level, thus depriving them of crucial input. Finally, the role formal language instruction and correction play in aiding comprehension, thus facilitating the acquisition process, is excluded in Krashen's Input Hypothesis. White (1987) argues that both of these can be beneficial to the language learner and facilitate the process.

2.3.8 The Input and Interaction Hypothesis

The input and interaction hypothesis takes its lead from Krashen's notion of comprehensible input and looks at the importance of interaction between L2 learners and other speakers of the L2. According to Long (1985, 1996), the best way to make input comprehensible is through interactional modifications. Incomprehensible input or partially comprehensible input can be brought up to a level which is comprehensible to the learner by means of negotiation, which can take the form of either lexical, phonological or structural modifications.

Studies adopting the interactional approach reveal important insights into L2 grammar, focusing on the speech used by native speakers (NS) when addressing non-native speakers (NNS). Studies reveal that the NS use a simplified version of the language when addressing the NNS, similar to the modifications speakers make when talking to children. This modified speech is interesting because it is believed that SLA occurs if the input is understood by the language learner. These modifications facilitate in making the input more comprehensible. However, while these speech modifications are necessary, they are not sufficient in aiding comprehension. It is the modifications made to the interactional structure which has a greater role in facilitating the comprehensibility of the input.

In a seminal paper by Hatch (1978a), the importance of interaction and language learning is discussed and she urges researchers to look at how the learning of a particular structure evolves out of communicative use of the L2, instead of looking at how the learning of the L2 structure leads to the learner's communicative use of the L2:

> It is not enough to look at input and to look at frequency; the important thing is to look at the corpus as a whole and examine the interactions that take place within conversations to see how that interaction, itself, determines the frequency of forms and how it shows language functions evolving.
>
> (Hatch, 1978a, p. 403)

Hatch's view that language learning evolves out of learning to conduct a conversation is the opposite of what was held to be the basic premise up until now, which was that a child progresses from one-word to two-word utterances and

eventually puts these utterances together so that they are able to participate in a conversation. Hatch (1978a) takes the input explanation of morpheme acquisition one step further, by suggesting that the order of acquisition is a reflection of conversation growth and that it is the constraints that conversation puts on questions that explain the frequency of questions in the learner's input and hence, the learner acquires these questions first. Over the years, many researchers have followed Hatch's lead, and looked at the importance of interaction and its role in aiding the language learning process. The interaction between the learner and the interlocutor can be modified or restructured in a number of ways. It can be interrupted by a correction or the interaction can be rerouted to a new topic. Much of the research has focused on the type of interaction referred to as negotiation for meaning, which can be defined as:

> the modification and restructuring of interaction that occurs when learners and their interlocutors anticipate, perceive, or experience difficulties in message comprehensibility. As they negotiate, they work linguistically to achieve the needed comprehensibility, whether repeating a message verbatim, adjusting its syntax, changing its words, or modifying its form and meaning in a host of other ways.
>
> (Pica, 1994, p. 494)

Features of negotiation include the listener requesting message clarification and message confirmation and also include the speaker responding to the request for clarification and confirmation. Examples of such strategies include repetition at lexical, phrase or sentence level, paraphrasing, simplification or elaboration of the original message, the insertion of conjunctions or enumerators to mark temporal and spatial relationships or the substitution or elimination of new words or phrases to make the message more comprehensible. While these are features of NS-NS interaction, they are more prevalent in NNS-NS interaction and more prevalent again in NNS-NNS interaction. Pica (1994) refers to the various requests, checks and questions of negotiation as *signals*, the function of which is to help fill the communication gap.

Long and Robinson (1998) highlight the positive aspects of negotiation by pointing out that it is a 'natural' modification of the interactional structure, and can facilitate making the input more comprehensible to the L2 learner, without

denying the learner access to unknown linguistic elements, which tends to occur through linguistic simplification, such as the manipulation of sentence length and syntactic complexity. Negative feedback, which can be either implicit or explicit, and results from negotiation, signals to the L2 learner that a given utterance is not acceptable in the L2, thereby encouraging him to make their utterances more target-like and comprehensible to the NS.

During the mid 1990s, focus on the role interaction played in second language acquisition shifted towards recasting (Oliver, 1995; Lyster and Ranta, 1997; Braidi, 2002) and focus-on-form (Doughty and Varela, 1998). Long and Robinson (1998) state that the use of recasts, the negative feedback to the learner as a result of negotiation, can facilitate L2 development by providing the learner with a target-like exemplar of the learner's erroneous utterance, through such strategies as addition, substitution or reordering, while preserving the learner's intended meaning at the same time.

However, the question of provision of negative evidence and its usefulness in second language acquisition has been debated since the mid-1990s. Just because negative evidence is being provided by the NS does not mean that it is used by the learner to develop his L2. The usefulness of the negative evidence is dependent on the learner being able to identify the error that the NS is correcting and the ability of the L2 learner to commit this error to memory in order to compare it to the original erroneous utterance (Long, 1996). Farrar (1992) examines how children imitate new morphemes that are contained in negative evidence and provides evidence that children have the ability to not only notice negative evidence as negative evidence, but also to use this evidence. Farrar (1992) also claims that children are more likely to imitate the grammatical morphemes contained in this negative evidence than in any other type of discourse with their parents. Lyster and Ranta (1997) demonstrate that although recasts are used by L2 learners, other forms of negative evidence may be more useful. Doughty and Varela (1998) provide evidence from a content-based ESL course in the United States that the effectiveness of recasting can be enhanced by combining it with other more explicit strategies. Examining the occurrence of recasts in ten NS-NNS dyads, Braidi (2002) finds that out of 2,522 exchanges, there were 880 erroneous

utterances, of which only a quarter were responded to negatively and out of this, only 5.39% of the negative evidence was recasts. This study also examines the use of recasts in the same dyads and results reveal only a small number of corrected structures being incorporated by the NNS, with the NNS tending to respond to the recast with a 'yes' or 'no' answer. However, an interesting finding from their study reveals that if the recast occurs in an appropriate context, then the learner's tendency to incorporate the corrected structure rises from 9.5% to 34.21%.

Long (1983) explains the distinction between modified input and modified interaction. While input focuses on the linguistic forms (grammatical morphemes, lexical items and syntactic structures) in speech which is directed at the NNS, interaction focuses on the function that these linguistic forms have in conversational discourse. When looking at modifications of L2 speech, Long (1983) points out that the linguistic forms may be modified (certain morphemes may be deleted), the interaction may be modified (there may be repetition and confirmation check), both the linguistic forms and the interaction may be modified or there may be no modification present at all.

Basing his results on an empirical study of 32 NS-NS and NS-NNS dyads, Long (1983) outlines how, more so than modification of the speech found in speech addressed to the NNS by the NS, it is the modification of the interactional structure which has a bigger role to play in facilitating the comprehensibility of the input. He describes fifteen devices that are available to the NS and used in the modification of interaction, and classifies each device as being a *strategy*, the function of which is to avoid conversational trouble, *a tactic*, the function of which is to repair the discourse if trouble occurs and the third kind, *strategies and tactics*, which fulfils both functions (Table 2.1).

Strategies	Tactics	Strategies and Tactics
relinquish topic control to the NNS	accept unintentional topic-switch that results from misunderstanding	use slow pace
select topics salient to the NNS	request clarification	stress key words
treat topics briefly	confirm comprehension of self	pause before key words
make new topics salient to NNS	tolerate ambiguity	repeat own utterances
check comprehension of the NNS		repeat other's utterances
		decompose topic-comment constructions

Table 2.1: Devices used to modify interactional structures (adapted from Long, 1983, p.132)

Lee (2001), based on evidence from an online interactive exchange between NNS of Spanish, reveals that, regardless of level of proficiency, students use a number of interactive strategies, which facilitate comprehension. The most common strategies use by the subjects in Lee's study are as follows: comprehension checks, clarification checks, confirmation checks, use of the L1 to express lexical items unknown in the Spanish, self-corrections, word invention, requests and use of approximation, using words such as *bolo* (ball) to express *globo* (balloon).

While pointing out that negotiation and modification are not necessary conditions in the language acquisition process, Gass (1988) does recognise that they increase the possibility of a greater amount of data becoming available to the language learner for further use. Larsen-Freeman and Long (1991), on the other hand, state that modifying the interactional structure of the conversation between the language learner and the interlocutor is a necessary, but not sufficient condition for language acquisition to take place, as it can help make the input more comprehensible. At the same time, it can still contain unknown linguistic elements and thereby facilitating potential intake. Basing her argument on theoretical and empirical evidence, Pica (1994) looks at three ways in which social interaction and negotiation between the language learner and their interlocutor contribute to the language acquisition process. It contributes to the conditions under which the L2 is learnt by facilitating learners' comprehension and structural segmentation of the L2 input. Secondly, it facilitates the language learning process by facilitating

access to lexical form and meaning, and finally, it contributes towards the language learning output by facilitating production of modified output. Pica (1994) outlines six theoretical perspectives on conditions that aid second language acquisition and classifies them into two types of conditions; conditions that are learner oriented and those that are language oriented. The three learner- oriented conditions are: 1) for the learner to access and internalise the rules, forms and features of the L2, not only must the learner be exposed to the message, but the learner must also comprehend the message; 2) in order for the learner to master the L2, the learner must not only comprehend the utterance, but must also produce the modified output; 3) learners must pay attention to L2 form before they attempt to process the input and attempt to master difficult structural features. The three language-oriented conditions are: 1) the input must be grammatically systematic in order to facilitate the learning process; 2) input, which makes subtle features of the L2 more salient to the language learner, will contribute towards the learning process and 3) feedback and negative input are necessary to provide the learner with information on the clarity, accuracy and comprehensibility of their language.

As well as outlining the above theoretical claims, Pica (1994) presents findings from a number of empirical studies that demonstrate the role negotiation plays in facilitating comprehension by modifying the L2 into more comprehensible units, and, as a consequence, the positive effect it has on the learning process. Pica (1994) does point out that the studies have placed the role negotiation plays in language learning in second place to comprehension of meaning, which these studies see as the principal way for the learner to access and internalise the L2 form.

Pica (1994) also highlights areas where negotiation between the learner and the interlocutor does not contribute towards language learning and where caution must be exercised. Negotiation focuses on the comprehensibility of the message, and many interlocutors can, through negotiation, communicate a message. However, this message may not be target-like in its form. The process of negotiation is more applicable to lexical items and large syntactic units, rather than smaller units of the utterance such as grammatical morphemes. However, as

Foster and Ohta (2005) point out, grammatical morphemes are not so communicatively load-bearing, and failure to understand a grammatical morpheme would not lead to a break-down in communication as much as failure to comprehend a lexical item would. Aston (1986) points out that it can be demotivating for the language learner as it emphasises that the learner's utterance is not target-like in its form. Pienemann (1989) shows how negotiation does not assist in the process of internalisation of the L2 form, if the learner is not ready for this new word as a result of not having developed the necessary processing prerequisites to advance onto the next acquisitional stage. Pica (1994) also argues that agreement has yet to be reached on how the impact of negotiation on the internalisation of the L2 language form can be measured. Foster and Ohta (2005) also point out that the effectiveness of negotiation can depend on the personality traits of the language learner. Learners who do not want to appear too pushy or forceful and who are content with getting just 'the gist' of the conversation may avoid requesting confirmation or clarification or asking the speaker to repeat the utterance. From a research point of view, Foster and Ohta (2005) point out that it can be difficult to distinguish between the surface form of the negotiation (such as a confirmation check) and the pragmatic function of the negotiation, whereby the learner is expressing interest rather than expressing their confusion.

Gass and Varonis (1985), looking at databases from 80 telephone conversations between NS-NNS and NS-NS, examine five variables that impact on NS foreigner talk and also discuss what are the different factors of the NNS that facilitate the speech modification of the NS. Their paper also suggests that the quality and quantity of NS modified talk is a function of the NNS's L2 proficiency.

Five variables in NS's speech are investigated in their study: 1) negotiation of meaning, 2) quantity of speech, 3) scope of repair, 4) elaboration and 5) transparency (Gass and Varonis, 1985). In NS-initiated negotiation, the NS uses three times as many negotiation routines when interacting with NNSs of low proficiency than when interacting with NNSs of high proficiency. Regarding the second variable, quantity of speech, Gass and Varonis (1985) found that the greatest quantity of speech is directed to the NSs, the second greatest quantity of

speech is directed at the high-level NNSs and the smallest quantity of speech will be directed at the low-level NNSs. They also found that a smaller quantity of speech will be directed to the NNS at the end of the conversation than at the beginning, and that the quantity of speech directed to the NS will not change throughout the conversation. Regarding the notion of repair, Gass and Varonis (1985) predict that if repair is a factor of proficiency, then the scope of repair will be greater in low-level NNS interaction than in high-level NNS interaction. For the final two variables, elaboration and transparency, their study reveals that at the beginning of the conversation, there is more elaboration and transparency in the low-level NNS interaction than the high-level NNS interaction, but at the end of the conversation, there is a greater level of elaboration and transparency in the high-level NNS than in the low-level NNS interaction.

However, Gass and Varonis (1985) point out that with each variable, the results for the low-level NNS and the high-level NNS differ with regard to the start and end of the conversation, suggesting that the NS undergoes a process where they reassess the level of proficiency of the NNS and this reassessment seems to be in a negative direction.

Gass and Varonis (1985) conclude by trying to determine the NNS variables that facilitate negotiation from the NS. Due to the nature of the research design, the NNS variables of appearance, vocabulary and grammar were controlled, as the interviews were conducted on the telephone, and the interviewers read the questions from a script. A fourth variable, fluency, was partially controlled, as the interviewers had rehearsed the questions in advance. However, they show that two further variables, comprehensibility of the NNS and the NS's perception of the NNS, do impact on the degree of speech modification of the NS.

Prompted by the fact that previous interactional studies do not show how interaction affects grammatical development and do not examine the relationship between interactional structures and grammatical structures, Braidi (1995) argues that in order to understand the role negotiation plays in the grammatical development of L2, the specific grammatical structures in the interaction must be

examined. In order to look at the role input has on grammatical development, Braidi (1995) bases her argument on four criteria: relevance, availability, accessibility and effect. The relevance aspect involves identifying which features of input facilitate the learner's grammatical development. The availability criterion looks at the levels of simple/complex input that is required in order for the relevant input to be available to the L2 learner. The accessibility criterion asks if the necessary input which is available to the learner is actually accessible to the learner and finally, the aspect of effect concerns how well-formed the input is by looking at the question of grammatical and ungrammatical input and the effect that the variability of the input has on the L2's grammatical development.

It has already been mentioned that the Input and Interaction Hypothesis takes its lead from Krashen's Input Hypothesis, but another explanation put forward to explain the acquisition order also builds on the notion of comprehensibility- the Multidimensional Model, which later evolved into the Processability Explanation. Cook (1993, p. 102) says that this model "has many of the virtues of the Input Hypothesis without some of its vices".

2.3.9 The Processability Explanation

Clahsen (1986) took the first step towards connecting second language acquisition research with psycholinguistic theories of language processing. Using data from German, English, Swedish and Japanese, the Processability Theory, which predicts which structures can be processed by a language learner at any particular stage of their interlanguage development, was introduced by Pienemann (1998) in order to explain the universal pattern of second language acquisition. The Processability Approach is considered to provide a broader theoretical approach to the earlier Teachability Hypothesis (Pienemann, 1987, 1989), which in turn developed out of the Multidimensional Model of Meisel, Clahsen and Pienemann (1981).

The Teachability Approach (Pienemann, 1987) explores whether the process of natural L2 acquisition can be influenced and altered by the formal instruction of

the L2, in a study conducted on 10 Italian children of migrant workers in an Italian language class in a German primary school.

The results of this study reveal that instruction cannot add a given linguistic structure to the learner's interlanguage at any desired stage of the learner's interlanguage development. In other words, instruction cannot alter the order in which L2 learners acquire structures (Pienemann, 1987, p. 154). While admitting that the teachability hypothesis negatively constrains the influence of instruction on acquisition, he acknowledges that instruction can influence the speed with which acquisition takes place, the frequency of rule application and the different contexts in which the rule must be applied (Pienemann, 1987, pp. 162-163). Pienemann (1989) argues that teaching a structure before the learner is ready to acquire that particular structure can actually be counterproductive and will do nothing to promote language acquisition. Krashen's Input Hypothesis, which claims that formal instruction can influence L2 acquisition as long as the input is comprehensible, is incompatable with the Teachability Hypothesis, as they differ in their scope:

> The i+1 hypothesis........is less specific in its scope, since it does not imply that *no elements other than those from i+1* can be learned at stage i and transmitted to the acquired system. Thus it does not address the question whether the process of L2 acquisition can be steered by formal instruction, which is the main concern of the teachability hypothesis.
>
> (Pienemann, 1987, p. 163)

Pienemann (1989) uses empirical evidence to demonstrate that the teachability of the language is constrained by what stage in the acquisition process the learner is at, as this will determine what the learner is ready to acquire. The model, proposed by Pienemann (1989), can predict 3 things; it can determine what the learner's next natural learning problem will be, it can assess the learner's orientation and it can be used to describe the learner's rule system.

Pienemann's approach to language learning, which underlies the processability explanation, is that at any one time, the language produced by the learner is limited by their capacity to process the language. Unlike the native speaker who

can subconsciously produce speech, the L2 learner must constantly pay attention to grammatical rules, particularly at the early stage of L2 development. The attention the learner pays to these grammatical rules is conducted at the level of his short-term memory, thus the speech produced by the learner is constrained by their memory capacity and the minimal time frame required to process the rules of the L2. Or in other words, language learning is limited by the universal human psychological constraints which underlie the production of speech. Pienemann applies this theory to the field of second language acquisition, explaining that learners will acquire structures which require the least amount of processing, before acquiring structures that require a greater amount of processing. Different grammatical structures will be processable by the learner at different stages of their language development. Pienemann (1998) identifies six stages in the acquisition process that a learner must progress through before being able to advance to the next stage, each stage being associated with a particular procedural skill necessary to process the language. Before a learner advances to the next stage of development, he must have mastered the procedural skills of the current stage. The goal of the processability theory is to predict the order that learners develop these procedural skills. If the learner does not acquire these procedural skills, the language will be unprocessable. Or, according to Pienemann (1998, p.4):

> Structural options that may be formally possible, will be produced by the language learner only if the necessary processing procedures are available.

Pienemann (2007, p. 140) proposes that processing procedures and routines, which form the hierarchy that informs the Processability Theory, are activated in the following sequence, where each sequence follows an implicational pattern whereby each procedure is a prerequisite for the following one:

1. no procedure, just lemma access (such as production of simple word)
2. category procedure (adding a past-tense morpheme to a verb)
3. the phrasal procedure
   i)   noun phrase procedure – matching plurality, such as three dogs
   ii)   verb phrase procedure – moving an adverb out of the verb phrase to the front of the sentence, such as yesterday I went
4. the sentence procedure – subject / verb agreement

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5. the subordinate clause procedure- if applicable.

Kawaguchi (2000) attempts to explain the emergence of Japanese verbal morphology within the framework of Processability Theory, by hypothesising that morphemes will be acquired in the following four sequential stages: (stage 1) invariant forms; (stage 2) lexical-semantic morphemes; (stage 3) phrasal morphemes and; (stage 4) inter-phrasal morphemes. Data obtained and analysed from three longitudinal studies and two cross-sectional studies provide empirical evidence which supports the theory. Kawaguchi (2000) also highlights the fact that results from her study indicate that the Processability Theory is applicable to, not only configurational languages, but also agglutinating languages such as Japanese.

2.3.10 The Aspect and Discourse Explanations

A number of studies over the years began suggesting that when learners acquire verbal morphology, it is the lexical aspect, inherent in the verb, rather than the grammatical aspect, which determines the acquisition of verbal morphology. Like most SLA studies, it evolved out of L1 research, where it was referred to as the Defective Tense Hypothesis, which can be explained as:

> In the beginning stages of language acquisition only inherent aspectual distinctions are encoded by verbal morphology, not tense or grammatical aspect.
> (Andersen, 1991, p. 307)

The Defective Tense Hypothesis went on to pave the way for the Aspect Hypothesis, which was introduced by Andersen (1991). In order to understand the premise behind the Aspect Hypothesis, it is necessary to distinguish between the grammatical aspect of the verb, which uses linguistic devices such as auxiliaries and inflectional morphology to mark the verb, and the inherent linguistic aspect of the verb, which is non-grammatical and defined in terms of the temporal properties of the event to which the verb refers (Sugaya and Shirai, 2007). It is these temporal properties which are said to facilitate the acquisition of tense. The Aspect Hypothesis paradigm has divided inherent lexical aspect into four categories, often referred to as Vendler categories: states, activities,

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accomplishments and achievements. Andersen (1991) was the first to adapt these categories to SLA studies. States persist over time without change (*Mary understands Japanese*), activities are not punctual, have an inherent duration and have no specific endpoint (*Mary swims*), achievements capture the beginning or end of an action, are punctual and instantaneous and therefore have no duration (*Mary won the race*) and accomplishments have both an endpoint and duration, and often involve a change of state (*Mary ran a mile*). The categories can be distinguished by sets of binary features which contrast predicates in terms of the presence or absence of the semantic features *telic*, *dynamic* and *punctual*. Thus, verbs may be [+/- telic] depending on whether they have an endpoint or not, [+/- dynamic] depending on whether the verb involves change or not or [+/- punctual] depending on whether the event occupies a period of time or not. Achievements and accomplishments are said to be telic, while states and activities are atelic. Similarly, achievements are punctual, and accomplishments and activities are not and activities, accomplishments and achievements are dynamic, while states are not dynamic. The main division between these verbs lies between stative and non-stative or dynamic verbs (achievement, accomplishment and activity verbs).

The Aspect Hypothesis asserts that in the early stages of acquiring a language, when learners are acquiring tense and aspect markers, they are influenced by the lexical aspect of the verb or predicate and neglect the tense or grammatical aspect of the verb. The four claims made by the Aspect Hypothesis can be summarised as:

1. Learners first use the perfective and past marking on achievement and accomplishment verbs, eventually extending use to activity and state verbs.
2. In languages that encode the perfective-imperfective distinction morphologically, imperfective past appears later than perfective past, and imperfective past marking begins with stative and activity (i.e. atelic) verbs, then extends to accomplishment and achievement (i.e. telic) verbs.
3. In languages that have progressive aspect, use of progressive marking begins with activity verbs and then extends to accomplishment and achievement verbs.
4. Learners do not incorrectly attach progressive marking to stative verbs.

(Sugaya and Shirai, 2007; p. 4)

An empirical study, looking at the tense and aspect of two children learning Spanish as a second language, conducted by Andersen (1991) provides evidence

for the Aspect Hypothesis. Andersen (1991) used the Aspect Hypothesis to explain the acquisition of tense and aspect in two untutored children studying Spanish as a second language. Analysis of his results reveals that the children's use of perfective / past marking is initially restricted to the use of telic predicates. In contrast, imperfect marking is initially restricted to marking atelic predicates, before moving onto accomplishments and finally to achievements. Progressive marking, on the other hand, is restricted to activities.

Robison (1990; 1995) also supports the aspect hypothesis. His hypothesis states that "tense inflections associate more with lexical aspects at lower levels of proficiency, but with tense at higher levels" (Robison, 1995, p. 345). His study of 4 levels of twenty-six Puerto Rican learners of English looked at the spread of the perfective past across all temporal contexts, not just in past-time contexts. His study shows evidence that during the early stage in the L2 acquisition process, learners use past tense marking in non-past contexts. Specifically, results show that learners apply past tense marking to achievements that are in the present or future tense, providing strong evidence that past is a marker of aspectual class. As the level of proficiency of the language learner increases, there is a decrease in the number of present or future tense contexts marked for past tense. Robison (1995) also revealed that telic predicates (achievement and accomplishment verbs) show the highest use of simple past and durative verbs were more likely to show [–ing] marking than punctual verbs. Robison used oral interviews to elicit his data but Bardovi-Harlig and Reynolds (1995) found a similar pattern to Robison, using multi-passage, rather than single-passage cloze tests, which allow for a broader sampling of verb types. Results were consistent with the predications of the aspect hypothesis. Achievement and accomplishment verbs show the highest use of simple past, activity verbs show the highest use of progressive and states show the highest use present tense. The rates of use of simple past tense increase for all lexical aspects with increased proficiency.

Bardovi-Harlig and Reynolds (1995) conducted a study on 182 adult ESL learners, who were at six different levels of proficiency to explore whether lexical aspect would influence the acquisition of the simple past tense and to identify areas of

difficulty. Their study revealed that the acquisition of the simple past happens in stages and that these stages are determined by the lexical aspect of the verb. Achievement and accomplishment verbs show the highest rate of use of the simple past tense, even at the lowest level of proficiency. Activity verbs show a much lower use of simple past and it is not until the learner reaches level 5-6 in proficiency that their appropriate use of the simple past with activity verbs is equivalent to their use of simple past with achievement and accomplishment verbs, which they have already reached in level 2. At a low proficiency level, subjects favoured the use of the progressive rather than the simple past with activity verbs and subjects favoured the use of the root form of the verb as an alternative to the simple past with stative verbs. When adverbs of frequency were introduced into the environment of activity and stative verbs, while there was no change in the competing form of stative verbs, the competing form of the simple past with activity verbs changed from the progressive to the non-past. The results of their findings can be summarised as:

> We observed three stages in the acquisition of the simple past. In the first stage, event verbs show higher use of past than non-event verbs (activity or state verbs). In the next stage (at about level 4) state verbs begin to show higher use of past than activity verbs. Finally, activity verbs show the same rate of use of past as state verbs.
> (Bardovi-Harlig and Reynolds, 1995, p. 119)

Collins (2002), basing her work on the Bardovi-Harlig and Reynolds study, used the same cloze test in two complementary cross-sectional studies on Francophone ESL learners to establish whether her subjects use the simple past more appropriately with telic verbs, whether the appropriate use of past will spread from activities to statives with atelic verbs and whether there will be a difference among the forms that compete with simple past. Results reveal that their use of tense/aspect markers is consistent with the pattern which emerged in previous studies. The subjects in the study showed the highest rate of success when using simple past with achievement and accomplishment (telic) verbs and favoured progressive for activity verbs and present tense for stative verbs. Collins (2002) also explores the interaction between L1 and lexical aspect and attributes L1 background to her findings with respect to the use of the perfect, which are inconsistent with that of Bardovi-Harlig and Reynolds (1995). Contrary to what

the aspect hypothesis predicts, it was activity verbs, rather than stative verbs, which caused her subjects most difficulty.

While all of these studies demonstrate that lexical aspect plays an important role in influencing the acquisition and distribution of verbal morphology in interlanguage, Bardov-Harlig (1998) puts forward the Discourse Hypothesis, stating that the pragmatics of discourse in the form of narrative discourse cannot be ignored. The foreground and background of the narrative discourse are two key concepts that lie at the heart of the Discourse Hypothesis. Linguistic strings are comprised of narrative clauses and free clauses. Giora (2004) explains a narrative clause as a punctual, non-habitual, temporally bound act or event. The order with which these clauses are presented are constrained by the temporal order of these events in real life situations. The chain of events temporally ordered constitute the foreground of the narrative. Giora (2004) goes on to explain free clauses as clauses that are not temporally ordered, that can appear anywhere in the text, and constitute the non-narrative material of the discourse and contain clauses that carry the background information of the discourse. The linguistic properties of narrative clauses (Giora, 2004) are outlined in Table 2.2.

Table 2.2: The Linguistic Properties of Narrative and Free Clauses	
Linguistic Properties of narrative clauses	Linguistic Properties of free clauses
Affirmative	Constitute subordinate clauses
Main clauses that involve punctual, transitive verbs	Involve non-punctual, at times repetitive, or aspectual verbs denoting past progressive or perfective events
Describe past events in the active voice and in the simple past	May involve stative verbs, modal, existential and affective verbs, as well as negation, passive voice, metaphoric and analogical aspects.

The Discourse Hypothesis posits that learners use verbal morphology to distinguish foreground from background in the narrative (Bada & Genc, 2007). Yang and Huang (2004, p. 50) distinguish between the Aspect Hypothesis and the Discourse Hypothesis by explaining that the Aspect Hypothesis puts forwards the notion that early L2 learners use verbal morphology to mark inherent lexical aspect, rather than temporal events, while the Discourse Hypothesis posits that L2

learners use past marking on foreground events and present marking on background events.

From a cross-sectional study of both oral and written narratives elicited from 51 ESL learners by means of a film retell task, she suggests that it is not only the Aspect Hypothesis, but also the Discourse Hypothesis, which account for the distribution of verbal morphology in the learner's interlanguage. While the Aspect Hypothesis claims that it is the lexical aspect of the verb which accounts for the verbal morphology, the Discourse Hypothesis claims that the narrative structure accounts for the verbal morphology. Up until now, both of the hypotheses were regarded as competing frameworks, however, Bardovi-Harlig (1998) reconciles these two approaches by stating that both hypotheses rest on shared features of temporal semantics. Results of the study show patterns similar to other studies, finding a clear progression of use of the past tense from achievements to accomplishments to activities. The highest use of simple past inflection is on achievement and accomplishment verbs, this is followed by activity verbs, with no use of simple past inflection on stative verbs. The highest use of the progressive occurs with activity verbs. Applying both the Discourse Hypothesis and the Aspect Hypothesis, analysis of the data refers to the notions of grounding, foreground and back ground, suggesting the following hierarchy to predict which verbs will be inflected by learners with limited linguistic resources:

1. Achievements are the predicates most likely to be inflected for simple past, regardless of grounding.
2. Accomplishments are the next most likely type of predicate to carry the simple past. Foreground accomplishments show higher rates of use than background accomplishments.
3. Activities are the least likely of all the dynamic verbs to carry simple past, but foreground activities show higher rates of simple past inflection than background activities. Activities also show use of progressive, but this is limited to the background.

(Bardovi-Harlig, 1998, p. 498)

Rohde's (1996) empirical study, which looks at the acquisition of four verbal inflections (3rd person singular present, [-ing] progressive, [-ed] simple past and irregular past forms) from naturalistic data produced by two German children

learning English, supports the Aspect Hypothesis by demonstrating that most verbs marked by past tense are achievement verbs, but shows that the verbal inflection [–ing] is associated not only with activity verbs, but also with achievement verbs, which is not what is predicted by the Aspect Hypothesis. This is explained by the fact that the present progressive [–ing] can be used to mark future reference. Rohde (1996) also saw a strong affiliation between stative verbs and the 3rd person singular inflection and between achievement verbs and the [–ed] simple past. There was a high occurrence of the irregular past form with achievement verbs, and the use of the irregular past with achievement verbs rose as the subjects got more proficient in the L2. While Rohde (1996) acknowledges that lexical aspect does play an important role in the acquisition of verbal inflections, he points out that evidence from his data would suggest that the emerging verbal inflections do not mark the lexical aspect of the verb. He concludes by saying:

> Thus lexical aspect possibly provides the learnability of inflections through the distributional bias of verb categories in native speech. However, it seems to be an overinterpretation to claim that the inflections themselves (redundantly) mark lexical aspect.
>
> (Rohde, 1996, pp. 1133-1134)

Basing their studies on data obtained from 80 students learning Japanese in Tokyo, Sugaya and Shirai (2007) support the Aspect Hypothesis by showing that their subjects scored higher for progressive inflections marking activity verbs than for accomplishment verbs, and therefore demonstrate sensitivity not just to the meaning that the progressive marker denotes, but to the inherent aspect of the verb. Their subjects favoured simple past for achievement verbs.

2.3.11 The 4-M(orpheme) Model Explanation

Wei (2000) proposes the morphosyntactic 4-M model explanation to try and account for accuracy orders. Studying 60 adult Chinese- and Japanese-speaking ESL students, Wei conducted informal oral interviews to elicit natural speech data, to demonstrate that accuracy orders can be predicted on the basis of a model of morpheme classification originally proposed by Myers-Scotton and Jake (1999) to account for other bilingual phenomena. This model classifies morphemes

according to how they are accessed in production, and therefore divides morphemes into system morphemes, which are functional elements, and content morphemes, which are comprised of nouns and most verbs and are thematic elements, as they are either assigned or receive a thematic role. System morphemes can be subdivided into three further types, based on whether they are early system morphemes or late system morphemes. Early system morphemes, which Wei refers to as 'conceptually activated morphemes', such as the plural [–s] and irregular past and progressive [-ing], are conceptually required to communicate the speaker's intention, and late system morphemes, such as the 3rd person singular [–s] and the regular past tense [–ed], are activated later in the production process. They occur with content morphemes, which act as their heads. Late system morphemes are not required to convey the speaker's intention, but they are required by the grammatical frame of the target language. These morphemes, which are structurally assigned rather than conceptually activated, are therefore harder to acquire than the early system morphemes. Wei (2000) subdivides late system morphemes into either bridge late morphemes or outsider late system morphemes. Bridge late system morphemes are used to connect elements, to make up large constituents, such as the phrase *of* in *the book of the prophets*, and outsider late system morphemes involve a verbal inflection where the inflection of the verb is dependent on information from the subject of the clause, such as in verb-subject agreement (Kormos, 2006). Myers-Scott and Jake (2001, p. 100) summarise late system morphemes as a system of morpheme where 1) their form depends not on the head of the maximal projection in which they occur (bridge morphemes), but on the other information in this maximal projection or 2) their form refers to information outside their maximal projection (outsider morphemes).

In (1), *baby*, *play*, *toy* are all content morphemes, assigned thematic roles. *Baby* receives the thematic role of experiencer, *toy* receives the thematic role of stimulus and *play* assigns the thematic role to *baby* and *toy*. *The*, *with* and the 3rd person [–s], are system morphemes and are not assigned thematic roles. The 3rd person [–s] defines the relationship between the subject and the verb, and as it is simply required by English grammar, is a late system morpheme. The determiner

the indicates definiteness and is an early system morpheme and the preposition *with* fleshes out the meaning of the verb.

(1) *The baby plays with the toy.*

Based on this morpheme classification, Wei (2000) proposes a hierarchical order of morpheme acquisition, with content morphemes being acquired before early system morphemes, which are acquired before late system morphemes.

Similar to the notion of 'conceptually activated' in the 4-M model, Van Patten (1984) proposes an explanation for morpheme orders based on the communicative value of the morpheme, stating that learners first acquire morphemes that are more essential in the role of communication. "It is the relative communicative value of a linguistic item that plays a major role in determining the learner's attention to it during input processing and the likelihood of it becoming part of the intake" Van Patten (1995, p. 174, cited by Wei, 2000). While Wei's (2000) explanation of acquisition order is based on how the learner accesses the morpheme (which in turn is based on how they are processed), Van Patten (1984) explains the order in terms of input processing.

2.3.12 The Implicational Model

The implication model, which offers a model that accounts for variability, systemacity, groups and individuals, was proposed by Andersen (1978) and is a revision of the Ordering-Theoretic Model (Dulay and Burt, 1974a). In addition to being a theoretical explanatory model, it also incorporates implicational analysis from the field of sociolinguistics, which can account for linguistic variation in a way which reveals any underlying systematicity in the data. Andersen's implicational model looks at the relationship between the morpheme order group score (which is arrived at by adding the score obtained by each individual in the group) and the morpheme order of those individuals. He explains that implicational analysis is a device used to correlate certain attributes of language use with individual speakers or groups of speakers, in such a way that the presence of a particular attribute in the speech of the individual implies certain other attributes in their speech. An implicational table represents the correlation

between the presence or absence of the language attributes being studied by the subjects of the study. The speakers (or groups of speakers) are listed in descending order, according to the number of particular attributes that are present in the speech of that speaker (or group of speakers). An example of an implicational table can found in Table 2.3 (adapted from Andersen 1978, p. 225), where '1' refers to the correct use of the morpheme and '0' means the particular morpheme was not correctly used.

Grammatical Morphemes				
	Copula -be	Aux -be	Irreg past	Aux have	N=89
Level 1	1	1	1	1	10
Level 2	1	1	1	0	25
Level 3	1	1	0	0	28
Level 4	1	0	0	0	24
Level 5	0	0	0	0	2

Table 2.3 Example of Implicational Table

The particular language attributes that are the focus of Andersen's 1978 study are grammatical morphemes and he uses the model to analyse written samples obtained from a cross-sectional study of 89 Spanish ESL learners and their use of 13 grammatical morphemes (with a criterion level of correct use set at 80%). While implicational tables express the language attribute, which in this case is a grammatical morpheme, in a binary way, Andersen admits that it can obscure certain aspects of the individual's use of the attribute and so the data is also represented in quantitative terms. Whether or not the implicational table is valid for a significant portion of the subjects can be calculated using the 'coefficient of reproducibility' (Andersen, 1978, p. 227). Alternatively, an implicational table can also be expressed in a linear way, called the implicational continuum (Andersen, 1978, p. 228).

Andersen's study places irregular past before regular past but individual scores determined that irregular past and regular past are unordered with respect to each other. Andersen (1978) also applies this model to previous morpheme order studies and finds that it supports Krashen's (1977) Natural Order for the acquisition of morphemes and Larsen-Freeman's (1976) work on frequency of

occurrence as an explanation for morpheme orders and Dulay and Burt's (1974a; 1974b) study. Andersen (1978) concludes his paper stating that accuracy orders are the surface manifestation of more deeply seated underlying factors, such as syntactic category, morpheme type, input frequency, L1 similarity, syntactic and semantic complexity and perceptual saliency.

2.4 Criticisms of Morpheme Order Studies

As is evident from section 2.3, much work has been carried out on second language acquisition and the manner in which language learners acquire morphemes. However, research in the area of morpheme order studies is not without criticism for a number of reasons. Criticisms can be divided into two main issues; linguistic and methodological. This section will discuss linguistic issues first, followed by a discussion on methodological issues.

2.4.1 Linguistic Issues

The main linguistic criticism concerns the linguistic heterogeneity of the morphemes involved, mixing NP and VP morphemes and bound and unbound morphemes, as if they were the same. The usual set of morphemes contain disparate grammatical elements such as verbal inflections (progressive [–ing], regular and irregular past and third person singular [-s]), noun-phrase morphology (possessive and plural [–s]), noun-phrase syntax (the determiners 'a' and 'the') and the auxiliary and copula forms of 'be'. The diversity of these items blurs the conventional linguistic distinction between morphology and syntax, as well as crossing different phrase types (Cook, 1993). Wode, Bahns, Bedey and Frank (1978) say there is no reason to assume that different language elements, such as verbal inflections, the copula and prepositions, are acquired in a similar manner and therefore comparable. They argue that the acquisition of these language elements are not comparable because their properties are different (bound morphemes vs free morphemes).

Similarly, Cook (1993) points out that many of the morphemes which are the focus of morpheme order studies have different allomorphs, yet little heed is paid

to these allomorphic variants, which are realised in different ways, depending on their phonological and grammatical environment. The morpheme for plural [-s] and possessive [-s] marker can have three different phonetic realisations /s/, /z/ or /iz/ and the regular past tense is also dependent on its phonological environment and may be realised as either /t/, /d/ or /id/ and similarly, the short plural [–s] and long plural [–es] are different allomorphic variations of the same morpheme.

Furthermore, Cook (1993) points out that morpheme order studies are not consistent in using morphemes rather than allomorphs. Children learning an L1 acquire allomorphs in a definite sequence, so L2 research is blurring important aspects of the sequence by not taking allomorphs into account. While Larsen-Freeman (1975) did score all allomorphs of each of the ten morphemes in her study, many studies do not distinguish between morphemes and allomorphs. Andersen (1977) also demonstrates that the methods employed to analyse the data are problematic as they obscure and eliminate variation in the morphemes produced by the subjects, failing to reveal the true systematicity in the data that is being observed.

This motivated Andersen (1978), in his implicational model, to present the results of his data analysis by arranging the 13 morphemes in four different ways: all 13 morphemes presented as one linear implicational series; all 13 morphemes presented as two independent linear implicational series (VP morphemes vs NP morphemes); all 13 morphemes reorganised according to morpheme type (free morphemes vs bound morphemes); all 13 morphemes organised into four linear implicational series (bound V, free V, bound NP and free NP morphemes). "The free/bound dimension seems to correspond to a reality in the way a learner deals with language. The free morphemes have an independent status that bound morphemes do not have. And the bound morphemes share word-final position and minimal phonetic content" (Andersen, 1978, p. 276).

The final issue relating to specific linguistic design faults of morpheme studies pertain to the fact that the vast majority of the research has been done on English as a second language, and although they can be generalised to languages that are

morphologically similar to English, these studies cannot be applied to languages that do not have any morphological inflections.

2.4.2 Non-linguistic Methodological Issues

Morpheme order studies also come under fire due to the methodology adopted in many of the studies. This current research is exploring the acquisition order of morphemes by language minority children. Research in morpheme acquisition orders dates as far back as Brown (1973) and there have been countless studies carried out since then. However, many of these studies have come under fire due to the methodology adopted by them. Before discussing the methodology adopted in this current study in the next chapter, this section will briefly review some of the literature which discuss criticisms of methodologies adopted in previous morpheme studies.

Some of the morpheme order studies are longitudinal in design, while others are cross-sectional. The validity of cross-sectional studies in second language acquisition research has been criticised in the literature. Andersen (1977) criticises the methodology of cross-sectional studies saying that they erode the data to such an extent that what data there is left to analyse is less interesting than the data that has been discarded in the process. Rosansky (1976) questions whether results from cross-sectional studies are comparable with those from longitudinal studies. To illustrate this point, the morpheme order of a Spanish speaking ESL adolescent, Jorge, was scored using speech data from a 10-month longitudinal study. The order obtained was then compared with the order calculated from a cross-sectional study from the same study on the same individual, using identical scoring procedures. The results revealed a variant morpheme order and Rosansky (1976) claimed that the order could only be sustained in aggregated, cross-sectional group data, and that it was contradicted by longitudinal data on individuals and concluded that a longitudinal study of spontaneously collected speech data may provide a richer insight into the second language acquisition process.

> One of the assumptions of a cross-sectional study is that the slice one takes in the continuum will be a microcosm of the developmental process. However, we

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know little of what the continuum looks like, and so we cannot be too confident that a single slice reflects the entire continuum.

(Rosansky, 1976, p. 420)

Due to the high correlation between the morpheme orders of the longitudinal study of Brown (1973) and the cross-sectional study of de Villiers and de Villiers (1973), it was assumed that L2 cross-sectional data would show reliable data about the acquisition process of L2 learners. However, this is problematic because, firstly, it is not known if L1 and L2 learners follow the same learning curve and, secondly, while we can compare L1 learners with other L1 learners by comparing their mean length of utterance (MLU), and we can compare L2 and L2 learners using such variables as age of initial exposure and number of months of exposure, there is no valid way to compare L1 and L2 subjects (Rosansky, 1976).

The method of data collection used to elicit speech samples has also not escaped criticism and Rosansky (1976) questions the validity of some of the conclusions reached in the early morpheme studies and asks if the acquisition order obtained from samples using a particular elicitation method would be consistent with the order that would be found had natural spontaneous speech data been used. Rosansky (1976) questions the reliability of the BSM as an elicitation instrument and, citing anomalies from Dulay and Burt (1973, 1974b), illustrates how a different morpheme order is obtained when spontaneously collected speech data is used. However, Krashen (1977), as cited in Larsen-Freeman and Long (1991), refutes the suggestion that the natural order in morpheme acquisition is an artefact of the BSM and explains the discrepancy in Larsen- Freeman's (1975) results by the two ways that L2 learners use to internalise language: acquisition, which is an unconscious process, and learning, which is a conscious process. Krashen (1977) believes that data elicited using the BSM is based on the learning process, and data collected by other tasks are based more on the acquisition process.

Cook (1993) cites Brown (1973) and Dulay and Burt (1973) to illustrate how the concept of sequence is also problematic in morpheme studies. Brown (1973) and Dulay and Burt (1973) arrive at their acquisition order using two disparate approaches. Brown (1973) arrived at his acquisition order by ordering the acquisition points where the children achieved the 90 per cent criterion level,

where a morpheme could only be said to be acquired if it was found at a 90% level of accuracy over three consecutive recordings. This was a very rigorous requirement when compared to L2 studies in the area. However, Dulay and Burt (1973) arrived at their acquisition order by looking at where the children achieved acquisition at a single moment in time. Cook (1993) refers to Brown's approach as being an order of acquisition, and Dulay and Burt's as an order of difficulty.

Wode, Bahns, Bedey and Frank (1978) and Bardovi-Harlig (2000) question whether the morpheme studies themselves are a suitable tool to use when looking at the second language acquisition process. Morpheme studies do not show any interest in the grammatical morpheme until it reaches a critical level of acquisition, which is arbitrary and usually either 80% or 90%. However, limiting the analysis to the suppliance of the morpheme in obligatory contexts only reveals half of the total picture, with morpheme function and the over-suppliance of the morpheme not been taken into account, and all developmental stages leading up to the point of acquisition being disregarded.

Similarly, Andersen (1977) argues that the accuracy order ignores the fact that a particular morpheme might be used in an incorrect or inappropriate context. It is not sufficient to claim that a student can accurately use a morpheme because they correctly use it in an obligatory context. The learner must also know what contexts are inappropriate for that same morpheme. If morphemes are discussed in terms of their physical presence in the sentence, we are only getting half the picture, as sometimes, the form of the morpheme is acquired before the function of the morpheme. We cannot therefore look at form without looking at function. Wagner-Gough and Hatch (1975), when analysing the speech data produced by Homer, a five-year-old Iranian boy, found that although the progressive form [–ing] appeared in Homer's speech, the form appeared long before he acquired the function. Homer used the progressive in variation with other verb forms to refer to immediate intention, distant future, past events, process-state and the imperative. Wei (2000) also says that the classification of 'omitted' obligatory morphemes as 'errors', and ignoring ill-formed morphemes, makes it difficult to determine the subjects' developmental status. Larsen-Freeman and Long (1991) point out that

studies have adopted more refined data analysis procedures, such as target-like use (TLU) analysis, where the subjects' suppliance in non-obligatory contexts is scored in addition to the suppliance in obligatory contexts.

As an alternative to morpheme orders, Wode et al. (1978) propose developmental sequences as a more appropriate means to yield a deeper insight into how a language is processed by a child for the purpose of acquisition. They explain that children decompose complex language structures and then build them up again step by step until they reach target-like mastery, and that pre-target-like mastery is an essential part of the language acquisition process. Developmental sequences outline the various chronological stages a learner goes through to reach target-like mastery of a particular structure. While the order of these stages is invariant, the length of time it can take to pass from one stage to the next can vary with each individual language learner and Wode et al. (1978) explains that although the order of the stages will not vary, not all children go through all stages.

To illustrate that developmental sequences will tell more about the language acquisition process, Wode et al. (1978) use data collected from Wode's four German-speaking children during a six month stay in the USA. Focusing on the acquisition of the singular and plural of nouns, they point out that although the morpheme order approach can illustrate the chronology of the allomorphs /-s, -z, – ez/, the developmental sequence approach can illustrate that plural stems requiring /-z, -ez/ are initially inflected by adding [-s]. The fact that the morpheme order approach can not highlight cases where the morpheme shows target-like use in only certain environments is illustrated by showing that although the children used N + gen + proper noun, the children did not use N + gen + common noun, opting instead from a very early stage for the *of* alternative.

2.5 Summary

This chapter can be broken down into three sections. The first section introduced the major empirical studies that have been conducted in the area of morpheme order studies, in order to set the back drop to the case study which will become

the focus of this piece of work. The second section outlined the fundamental concepts and theories which have driven the SLA research agenda over the past forty years, ever since Roger Brown's seminal piece of work in 1973. It is beyond the scope of this single study to see if there is evidence from the study to support all of the theories that have been introduced in this chapter. However, some of the theories, such as the saliency or complexity of the morpheme, the morphophonological regularity of the morpheme, the input explanation and the inherent lexical aspect of the verb (in relation to the progressive participle) and the 4M model will be discussed in the findings and conclusion chapters of the dissertation. Finally, the third section highlighted some of the short-comings of morpheme-order studies. While every attempt will be made to take these shortcomings into account throughout the course of the study, this will not always be possible.

Before presenting the findings and conclusions that can be drawn from this study, the next chapter will detail the methodological procedures which were followed in conducting this current piece of work to arrive at a corpus which provided the primary data from which the five research questions could be answered.

Chapter 3: Methodology

3.1 Introduction

This chapter describes the methodology used to arrive at an accurate description of the sequence of development of five grammatical morphemes found in speech samples of five language minority children attending mainstream primary school in Ireland, with the aim to investigate these sequences on the basis of potential universals. The research draws on speech samples that were recorded and analysed as part of a four-month longitudinal case study conducted by the researcher. This chapter will outline the research questions which directed the course of the study and will describe the methodological procedures followed in the selection of the subjects, the recording of the speech samples and the subsequent collection, transcription, segmentation and coding of the data.

3.2 Case Study as a Research Method in Second Language Acquisition

Case study methods of research have been used in Second Language Acquisition (SLA) since the 1970s and have produced some important findings on how children and adolescents learn oral and written language; how language teachers draw on perspectives and assumptions to inform their practices; and how what happens outside the classroom interacts with the ways children learn and use language inside the classroom (Faltis, 1997, p. 145). Traditionally, case study research has its origins in research approaches adapted from the fields of psychology and linguistics (Brown, 1973; de Villiers and de Villiers, 1973; Dulay and Burt, 1973, 1974b, 1974c; Hakuta, 1976), with the focus of the research concerned with the lexical and grammatical processes which a language learner goes through in acquiring the target language and the common regularities found in the acquisition processes of second language (L2) learners. Studies mapped the development of language areas such as syntax, morphology and phonology. In more recent times, approaches have been adapted from other social science fields, such as applied linguistics, anthropology and education (Pica, 1997; Davis, 1995),

and the focus of studies extended into areas such as language policy and teacher development.

3.3 Current Case Study

This current study will adopt case study as a methodological approach. Due to issues relating to the alleged lack of generalisability of single-case studies because of the difficultly of distinguishing idiosyncratic behaviour from general behaviour (Larsen-Freeman and Long, 1991), this research approach will consist of multiple case studies. The case studies will chronologically map the language development of five language minority children from different language backgrounds, all of whom are students in an Irish primary school. The orientation of the study is qualitative in approach. Larsen-Freeman and Long (1991, p. 11) describe the prototypical qualitative methodology as an ethnographic study, where the researcher does not set out to test a hypothesis, but observes what is present. A similar definition is used by Tarone (1994, p. 676), who adds that with a qualitative methodology, one or a small number of learners are observed in communicative interactions and the patterns in their language use are systematically described. The research design in this study is data-driven, with patterns in the data being identified and analysed. As the current study is concerned with the language acquisition process, it is necessary to trace changes diachronically. For this, Larsen-Freeman and Long (1991) suggest the adoption of a longitudinal approach so that the research can trace the acquisition process, rather than analyse the outcome at any one point in time. The importance of longitudinal research in the advancement of knowledge in SLA is stressed by Ortega and Iberri-Shea (2005). A longitudinal approach is also more compatible with a qualitative methodology (Larsen-Freeman and Long, 1991, p. 11). Larsen-Freeman and Long (1991, pp. 11-12) say that a longitudinal approach (which is often called a case study in the field of SLA) involves:

> [o]bserving the development of linguistic performance, usually the spontaneous speech of one subject, when the speech data are collected at periodic intervals over a span of time........The longitudinal approach could easily be categorised by three of the qualitative paradigm attributes: naturalistic (use of spontaneous speech), process-oriented (in that it takes place over time) and ungeneralisable (very few subjects).

Little is known about the optimal length of observation, and there are as many arguments for studies that span a number of years as there are for a few months, but recently, the trend seems to be for a period ranging from three months up to six years (Ortega and Iberra-Shea, 2005). The decision about how long is long enough to study second language (L2) development in SLA is generally made by recourse to either biological time scales or institutional time scales, such as the school semester (Ortega and Iberra-Shea, 2005).

The research approach adopted for this study can also be described as descriptive research. While Larsen-Freeman and Long (1991) refer to descriptive research as an attribute of the qualitative paradigm, Seliger and Shohamy (1989) draw a distinction between the two, stating that they share certain characteristics, but are different in their approach, in that descriptive research is deductive rather than heuristic and begins with a preconceived hypothesis derived from theories of SLA. They explain descriptive research as a study in which:

> the researchers begin with general questions in mind about the phenomenon they are studying or with more specific questions and with a specific focus. Because the questions are decided in advance, the research only focuses on certain aspects of the possible data available in the language learning context being described.
>
> (Seliger and Shohamy, 1989, p. 117)

While this research is primarily concerned with the performance analysis on qualitative data, this is not to say that quantification will not have a role to play, as analysis of the data will take the form of quantification. However, this analysis will take the form of descriptive statistics (frequency counts and percentages), a term used by Lazaraton (1995), and will not be analysed statistically.

The general research questions which directed this study are:

1. What is the developmental sequence in the acquisition of five morphemes in five language minority children studying at Irish primary schools; specifically the plural [-s] morpheme, the possessive [-s] morpheme, the third person singular [-s] morpheme, the past tense [-ed] morpheme and the progressive participle [-ing] morpheme?
2. What is their pattern of growth?
3. Does it correspond with the Acquisition Order found by other researchers?
4. Is there evidence of language development over time?

5.   Do the five subjects in the study display a common language acquisition pattern and acquire the different morphemes in a similar way?

3.4 Generalisability of Case

While Faltis (1997) states that one of the problems with case studies is that results are not generalisable to comparable settings and contexts, Erickson (1986) points out that ending up with generalisable knowledge from case studies is not a goal of research that is interpretative in approach. However, every effort is made to ensure the internal validity of the case study through the careful selection of subjects and making any assumptions known at the start of the study.

3.5 Pilot Study

Prior to starting this research, a pilot study was conducted with one subject. The objective of this pilot study was primarily to test the software that would be used for transcription and analysis. Samples of speech were obtained from two interviews with a language minority child attending an Irish primary school. The recording was conducted by the subject's teacher, in the subject's school, but transcription, coding and analysis was carried out by the researcher. The subject in the pilot study subsequently became a subject in the 4 month longitudinal study.

3.6 Site Selection and Negotiating Entry

Six schools in Dublin were approached about the possibility of taking part in the study. All schools demonstrated a willingness to participate, however, two schools were subject to severe space constraints and were unable to provide a suitable room for the researcher to interview the subjects. A further two schools did not have pupils enrolled that fell within the required age bracket of 5-8 years of age. An acquaintance introduced the researcher to a school principal who previously had been involved in carrying out educational research. This principal was a key person in granting access to one of the six schools, where eight suitable subjects were identified. A ninth subject, from a different school, had initially been selected for the pilot study and was later identified as a subject for the study proper.

The teacher of this subject was another acquaintance of the researcher, who advised the researcher not to go through the school principal, as it was unlikely that a request to gain access to the school would be supported. Instead, the teacher spoke privately with the subject's parents who were very enthusiastic about their child participating in the study. Interviews with this subject took place in a classroom in the researcher's university, which coincidently, was also the place of work of the subject's mother. Their only request was that they receive a recording of each interview to send to the subject's family in Romania, to show them how their child was progressing in English.

3.7 Subjects of Study

Once suitable sites were selected, suitable subjects were identified. The criterion for sampling was identified as language minority children attending an Irish primary school who had a language other than English as their L1 and were aged between five and eight years of age. Hatch and Lazaraton (1991) cite subject selection as a common threat to internal validity in a study. As recommended by Hatch and Lazaraton (1991), all subject characteristics were checked at the selection process to ensure that they matched the criterion and checked for group bias. All subjects have diverse L1 backgrounds. Prior to their participation in the study, the purpose and aims of the study were explained to parents and written parental consent was obtained (Appendix A). As language minority children are considered to be a largely transient social group, initially nine subjects were selected, to allow for the potential of attrition, while also considering the nature of a longitudinal study. Four subjects were eliminated from the study during the first half of the study. One subject had severe behavioural problems and was being assessed for autism at the time of the third recording. One subject returned to his native country after the fifth recording and another subject had a nasal disorder which resulted in phonological problems where the speech produced diverged too much from standard speech. A fourth subject was frequently absent on days that the recording took place. Although the initial plan was to record speech samples from only four children, five subjects were recorded for the four month duration. This made provision for any attrition that might have occurred at the final stages of the study.

The two schools attended by the five subjects are designated as disadvantaged by the Department of Education and Science. All of the subjects' primary schooling has been in Ireland and all subjects receive ESL (English as a Second Language) support. For technical reasons, and to protect the privacy and identities of the five subjects, they are identified in the study by three upper case letters: HIC, AND, ELV, AME and SAR.

3.8 Data Collection

Empirical material was gathered by means of elicitation techniques, where samples of spontaneous speech data were recorded at 7-14 day intervals over a four month period. The length of the study was scaled with the institutional time-line, coinciding with the second half of the school year. The elicitation method was UNS (Unstructured Natural Communication). Interviews ranged from eight to fifty minutes in duration. The duration of each recording session increased as subjects became more comfortable and familiar with the researcher. Consequently, sessions towards the end of the study were as long as fifty minutes. This was also facilitated by the attrition rate, which made more time available from the 120 minutes which was allocated to the researcher every week by the school. Ideally, data collection would have taken place every seven days, however, in reality, many factors stood in the way. School holidays, mid-term breaks, students' absenteeism and the use of the school as a polling station in a general election meant that occasionally, a gap of 2-3 weeks occurred between some recordings. All interviews were conducted and transcribed by the researcher. Data from the first two data sessions were recorded on a Sanyo ICR-B170NX. All other data were recorded on an Olympus DS-40 digital voice recorder. The recorders were placed on the desk in front of the children.

Demographic information about the time, place and date of each interview was recorded and in addition to the collection of speech samples, a simple profile form was created for each child, containing such demographic information as date and country of birth, year of arrival in Ireland, and the subjects' L1. This information was obtained from school records (Table 3.1). Information on the parents' level of

English was obtained from relevant teachers, who met with the parents on a regular basis. Table 3.2 shows a summary of the duration and date of each recording.

Table 3.1 : Demographic Information on the 5 Subjects				
Subject	Country of Birth	Date of Birth	L1	Year of Arrival
SAR	India	15/12/2000	Hindi	2003
AME	Jordan	24/11/2000	Arabic	2001
AND	Ireland	18/10/2000	Romanian	Born in Ireland
HIC	Ireland	10/12/2001	Arabic	Born in Ireland
ELV	Latvia	21/05/2001	Latvian	2001

Due to the sensitive nature of the researcher working alone with young children, interviews were recorded in an open space in the school. This resulted in background noise at times, as members of staff and students passed through this area. Towards the end of the study, interviews took place in the more suitable location of the library. The library was glass-fronted and visible to passers-by. All interviews with AND were conducted in a glass-fronted classroom in the researcher's university. Although there was no background noise, the subject walked around a lot.

Transcriptions for HIC's data is given in full in Appendix E, AND's data is in Appendix F, ELV's data is in Appendix G, AME's is in Appendix H and SAR's is shown in Appendix I.

Subject	1st recording	2nd recording	3rd recording	4th recording	5th recording	6th recording	7th recording	8th recording	9th recording	Total in minutes
Table 3.2: Date and duration of each recording										
HIC	15/03/07	22/03/07	29/03/07	19/04/07	26/04/07	10/05/07	17/05/07	31/05/07		**194**
	12 minutes	14 minutes	9 minutes	22 minutes	20 minutes	24 minutes	48 minutes	46 minutes		
ELV	22/03/07	19/04/07	26/04/07	01/05/07	10/05/07	17/05/07	31/05/07	25/06/07		**199**
	15 minutes	25 minutes	20 minutes	33 minutes	39 minutes	27 minutes	20 minutes	20 minutes		
AME	08/03/07	15/03/07	29/03/07	19/04/07	26/04/07	01/05/07	17/05/07	31/05/07		**203**
	24 minutes	8 minutes	20 minutes	24 minutes	16 minutes	50 minutes	27 minutes	36 minutes		
SAR	08/03/07	15/03/07	29/03/07	19/04/07	01/05/07	10/05/07	17/05/07	31/05/07	25/06/07	**245**
	18 minutes	9 minutes	28 minutes	19 minutes	50 minutes	39 minutes	26 minutes	36 minutes	20 minutes	
AND	10/03/07	24/03/07	21/04/07	12/05/07	2/06/07	23/06/07				**180**
	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes				

3.9 Structure of the Interview

All sessions were conducted in a relaxed manner, to make the child feel at ease, and to elicit more natural samples of speech data. Interviews consisted of casual conversation about topics of interest to the subjects' daily lives, such as their journey to school that morning, birthday parties, pets and weekend activities with their families. Personalising the content of the conversation helped to engage the subject in the interviewing process. Prior to each interview session, students picked a favourite book or game from the school library and during the latter part of each session, students either recounted the stories from these books to the researcher or played a board game with the researcher. One subject, AND, got bored quickly with conversation and story-telling. However, he loved drawing pictures on the blackboard and speech was elicited by getting him to describe his picture to the researcher.

3.10 Transcription

Interviews were then downloaded to computer and audio-transcribed by the researcher using F4 transcription software for Windows, in conjunction with a USB footswitch. The transcription and coding system used is CHAT (Codes for the Human Analysis of Transcripts), an integrated component of CHILDES (Child Language Data Exchange System), a set of computational tools which originally was used by researchers of child language acquisition, and in more recent years, is used by second language acquisition researchers. It is designed to increase the reliability of transcriptions (MacWhinney, 2007) and utilises shared transcription formats and codes to facilitate data sharing and analysis.

Transcribing data using the standardised CHAT format generates a computerised transcript of conversational interactions and facilitates the subsequent automatic analysis of the data by a second tool of the CHILDES programme, CLAN (Computerised Language ANalysis). The CHAT transcription format is suitable for language learners of every age and level. It also enables the acquisition order obtained from the language minority children to be compared with results observed in other first and second language acquisition studies that are contained in the CHILDES data bank.

Mac Whinney (2007) describes coding as the process of recognising, analysing and taking note of phenomena in the speech transcript. The CHAT system provides the transcriber with a large number of coding conventions, with every symbol used in the coding system having a real-world referent. The relationship between the word in the transcript and the code in the form of a symbol must be consistent at all times.

Data is transcribed on Windows 2000 in rich text format using f4 transcription software and converted into ASCII text. Phonological transcription was not considered necessary, as the speech samples did not diverge widely from standard phonological speech. Consequently, standard English orthography is used. Transcripts in CHAT format must contain three main components: file headers, main tiers and dependent tiers.

3.10.1 File Headers

The file headers include such information as the participants in the conversation, the language used, the date the recording took place and the age and sex of the subject, all written in CHAT convention. All file headers must begin with the @ sign, followed by a header name, followed by a colon and a tab. An example of file headers which appear at the start of a transcript of a conversation between the male subject, HIC, and the researcher, NMK, is given in (1). HIC is 6 years, 3 months and 5 days at the time of the recording, which took place on March 15th, 2007. NMK is asking HIC about his daily routine and getting him to describe pictures from a book. This is recorded as background material and the dialogue is in English. Both the subject and the researcher have been assigned a role, that of target child and investigator respectively.

(1)   @Begin
        @Languages: en
        @Participants: HIC Hicham Child, NMK Niamh Investigator
        @ID: en|NDED|HIC|||||Child||
        @ID: en|NDED|NMK|||||Investigator||
        @Age of HIC: 6;3.5
        @Sex of HIC: male
        @Date: 15-MAR-2007
        @Bck: daily conversation and describing pictures from a book

3.10.2 Main Lines

The dialogue is then transcribed using CHAT conventions. Main lines record what each speaker actually said and begin with a *. Each main line contains only one utterance. Each additional utterance is written as a new main line. The three letter code in upper case letters after the * identifies the speaker. This is followed by a colon and a tab, which is then followed by the utterance. In order to ensure accurate computer analysis, all words must be spelt in a consistent manner. To carry out lexical and syntactic analysis, items in the subjects' speech must relate to actual words in the language. However, the speech must be coded to show where the subjects' speech diverges from real words. Failure to do this would distort the subjects' data. A section of a transcript of a conversation between the subject, AME, and the researcher, NMK, which has been transcribed using CHAT conventions is given in (2). The transcription conventions which occur in (2) are explained in 3.11.

(2)   *AME: eh Tommy wanted that big candle I don't know and Angelica wants
               The cake and there's an a@l on it and then +/.
      *NMK: there's a name on the cake?
      *AME: xxx wants eh a pie with worms in it, wants to eat it and he wants a
               chocolate bone.
      *NMK: he does, (be)cause he's a dog and dogs love bones, don't they?
      *AME: yeah, they don't eat, they just like bite.
      *NMK: right and then what's happening?
      *AME: eh Jackie was <bringing> [//] eh thinking about eh the dinosaur, was
               going to give Tommy a big giant present then the big great giant
               dinosaur comes in and he brought them some presents [/] presents.

3.10.3 Dependent Tiers

The third component of CHAT relates to the supplementary information contained in the dependent tier, which is written below the main line of the transcript. As this study is concerned with examining the role of universals in second language acquisition, transcripts are tagged for morphosyntactic elements. The morphological tagging of the transcript relies on the application of the MOR programme. This MOR programme automatically generates a dependent tier that codes morphemic segments by part of speech. Running the MOR programme on a CHAT transcript is straight-forward, and involves a one-line command. Running the MOR programme on one of ELV's files would require the simple command *mor elvin3.cha*, where *elvin3.cha* is the third transcript of ELV's data that has been transcribed in CHAT mode. A segment of a

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CHAT transcript which has undergone a MOR analysis is illustrated in (3), with the morphosyntactic dependent tier shown below the main line, and highlighted in bold. As this study is only interested in the speech produced by the subject, utterances produced by NMK, the researcher, do not contain the morphosyntax tier. The morphosyntax tier is marked by *%mor* and contains a code which assigns a part-of-speech to a word, along with the morphological analysis of affixes, such as the past tense (-PAST) on the verb or plural (-PLURAL) on the noun. Parts of speech can be verbs (v|make), auxiliary verbs (v:aux|is), nouns (n|dog) and so on. Parts of speech are separated from stems by a | delimiter. The stem is the singular form of the noun or the canonical form of the verb. The utterance "who's Bob?", for example, contains the WH-pronoun (who), the third person singular of the verb 'be' (is), and the proper noun Bob. This is expressed in the morphosyntactic tier as pro:wh|who~v|be&3S n:prop|Bob? Affixes are also coded and identified by the delimiter - . Prefixes are identified by the delimiter #, and fusional and infixed morphology are identified by &. Thus, 'cars', which appears in the main line of the transcript, is coded in the morphosyntax tier as n|cars-PL (a noun with the plural affix attached).

(3) *NMK: and what kind of shapes did you make?
     *ELV: not shapes, it's cars, Bob_The_Builder, (be)cause Bob_The_Builder, all of Bob_The_Builder .
     **%mor: neg|not n|shape-PL pro|it~v|be&3S n|car-PL
              n:prop|Bob_The_Builder conj:subor|because
              n:prop|Bob_The_Builder
              qn|all prep|of n:prop|Bob_The_Builder .**
     *NMK: oh Bob_The_Builder ?
     *ELV: yeah .
     %mor: co|yeah .
     *NMK: Bob_The_Builder shapes, like a car and did you make Bob ?
     *ELV: yeah .
     %mor: co|yeah .
     *NMK: something like Bob yeah, well Bob is a shape, isn't he, yeah .
     *ELV: no but you made Bob, who's Bob ?
     **%mor: co|no conj:coo|but pro|you v|make&PAST n:prop|Bob
              pro:wh|who~v|be&3S n:prop|Bob?**
     *NMK: Bob, Bob_The_Builder .
     *ELV: yeah, we did .
     %mor: co|yeah pro|we aux|do&PAST .

However, after initially running the MOR programme, many ambiguities can be found in the morphological tier, such as the line shown in (4). The word *watch* is initially ambiguous between a verb or a noun reading. To disambiguate this tier, it is necessary

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to run the POST programme, which is done by using the command *post elvin3.cha*. This creates a tier that does not contain any ambiguities, however, as this programme is not 100% accurate, it is still necessary to check that the POST programme has correctly tagged the ambiguous words.

(4) *ELV: ehm I watch Spongebob .
    %mor: co|ehm pro|I v|watch^n|watch n:prop|Spongebob .

As the transcripts used in this study are new and not part of the CHILDES databank, it was necessary to conduct a lexical clean-up on all CHAT files, before any CLAN programmes could be run. This process identifies any words which the programme does not recognise, such as words which have been misspelt or words not recognised by the CLAN lexicon. The command used to clean-up the files is *mor +xl elvin3.cha*. This command creates a mini-lexicon file, called a ulx file, which in this case, would be elvin3.ulx.cex, and will contain a list of all the unrecognised words from the *elvin3.cha* transcript. Once all the unrecognised forms have been corrected, and the number of words contained in the mini-lexicon file reduced to zero, the MOR programme can be run. To reduce the number of unrecognised words in the database, it can help to periodically run a programme called CHECK as transcripts are being produced. This programme is run using the command *check elvin3.cha*.

3.11 Transcription Codes

When generating transcripts in CHAT format, there are several transcription conventions which result in a more accurate analysis of language forms. The following conventions were used in the present study:

- The underscore is used to transcribe compound words such as play_station and is also used for representing a combination of words found in proper nouns, such as Sponge_Bob_Square_Pants and Bob_The_Builder:
  this is Jack_And_The_Beanstalk

- Acronyms are also transcribed with an underscore, such as D_C_U. This includes non-proper abbreviations, such as c_d and d_v_d.

- Replacement text and self-corrected speech must be identified. The text which is replaced or self-corrected is identified by <>, and followed by the symbol [//]:
  my dad <brought> [//] buyed it when yesterday he collect me

- Repetition of speech is also identified. The text which is repeated is marked by <> and followed by the symbol [/]:
  <I> [/] I like this

- If a part of a word is omitted, the omitted portion is given in brackets:
  yester(day) at night time I was being downstair

- Unintelligible speech is recorded as xxx:
  it's something xxx and him not can go

- If the utterance contains a word which is not a real-word form, it is necessary to provide replacement text in order to tell MOR how to process this word. Replacement text is written as [: xxxx]:
  he climbed up the beanstuff [: beanstalk]

- Letters of the alphabet are transcribed by putting the symbol @l after the letter:
  m@l, like that is one m@l

3.12 Data Analysis

A quantitative analysis of the data is conducted after the transcription process. As the purpose of this research is to analyse the subjects' learning of morphological markings and identify any salient patterns, the transcripts are coded for morphological and syntactic features, as outlined in 3.10.3. This coding, which is conducted in accordance with CHAT conventions, enables the transcripts to be analysed by the CLAN programme. A performance analysis, which will describe sequences in the emergence of L2 structures, is conducted on the transcripts on the dependent morphosyntactic line, identified by %mor.

Commands that were run on the CLAN programme using the CHAT transcript were MLU, FREQ, COMBO and KWAL. All these commands were run on the subject's tier only. The COMBO command searches the data for specific word strings. The COMBO command shown in (5) finds all utterances in HIC's data where a pronoun is followed by a noun. The full output generated from this command is shown in Appendix B. KWAL searches the data for specified words or keywords and outputs these words in context. The command in (6) is used to generate a list of all instances where the keyword *wake* occurs in AME's data. The output generated from this command is illustrated in Appendix C. To generate a list of plurals from the data, the FREQ command is used. The FREQ command shown in (7) generates a list of all

plurals that occur in ELV's data. FREQ counts the word frequencies in a selected file, and calculates the type-token ratio, which measures lexical diversity. The output generated from the FREQ command in (7) is shown in Appendix D. Finally, the MLU command determines the mean length of utterance of the subject, and shows the total number of morphemes and utterances in ELV's first recording (8). The result generated from this MLU command is given in (9).

> (5) combo +d1 +u +f +t*HIC +t%mor +s"pro|*"^"n|*" hicham*.mor.pst.cex
> (6) kwal +t*AME +swake ameen*.cha
> (7) freq +d2 +t*ELV +t%mor +s"*n|*-PL*" elvin*.mor.pst.cex
> (8) mlu +t*ELV elvin1.cha
> (9) Number of: utterances = 125, morphemes = 847
>   Ratio of morphemes over utterances = 6.776
>   Standard deviation = 7.871

These CLAN commands were used to extract all utterances that contained both correct and incorrect forms of regular and irregular past tense, regular and irregular plural forms, third person singular verbs and possessive [-s] utterances that occurred in both target-like and non-target-like situations. In addition to using these commands to extract utterances of interest, a visual inspection of hard copies of each transcript was also conducted, to ensure that all relevant utterances were captured. Utterances that were generated from running CLAN commands, in addition to any utterances that were picked up from a visual inspection of the hard copy of transcripts, were saved as EXCEL files. Tabulations were carried out by conducting a visual inspection of these EXCEL files. Utterances that were ambiguous, contained unintelligible speech or were followed by spontaneous self-repetition were excluded from analysis. All utterances that are illustrated in the study are followed by a number in square brackets, to indicate the particular recording cycle from which the utterance is taken.

In order to determine if a particular grammatical morpheme had been mastered, a criterion for acquisition had to be established. Much has been written in the literature about acquisition criteria, and although it is a fundamental issue in the research of Second Language Acquisition, it remains a problematic area, as the point of acquisition is necessarily arbitrary, with the point of acquisition varying, depending on what the acquisition criteria is set at. The acquisition criteria are usually expressed as an accuracy percentage, and can range from 60% (Vainikka and Young-Scholten, 1994) to 80% (Jia and Fuse, 2007) to 90% (Bahns, 1983). Just as Bahns (1983) has

demonstrated with the acquisition of modal verbs, applying two different acquisition criteria results in different acquisition orders of the same structures, using the same set of data. For the purpose of analysing this data set, the acquisition criterion was set at 80% accuracy in obligatory contexts across three consecutive testing sessions. Following Jia and Fuse (2007, p. 1286) if, in a given session, a participant produced fewer than five obligatory contexts for a particular morpheme, the data from that session was omitted from analyses. The data was analysed in accordance with the criteria outlined above in order to obtain the acquisition profile for each grammatical morpheme.

However, comparing the interlanguage of the subject to the target language scheme leaves data open to what Bley-Vroman (1983) called the comparative fallacy theory when he cautions SLA researchers against such an analysis, explaining that doing so might not reveal the whole picture of the language learners' internally constructed knowledge of the L2. Lakshmanan and Selinker (2001) argue that the comparative fallacy can lead to the underestimation and /or overestimation of the learners' linguistic competence. However, this does not mean that comparing the data with target-language norms is not good practice. Lardiere (2003b) argues that it is a legitimate goal of second language research to examine where, and to what extent, there is divergence from the target language. Shirai (2007, p.52) points out that looking solely at obligatory context, is, by definition, a method of analysis that commits the comparative fallacy, however if analysis is not restricted to comparison with target-language norms, and if all linguistic forms of the morpheme are analysed, the comparative fallacy can be avoided.

> [I]n order to avoid the comparative fallacy, it is imperative, methodologically speaking, to look at the total use of a particular morpheme, not just obligatory contexts. This is not incompatible with obligatory context analysis: one can do an obligatory-context analysis, and, in addition, can look at the total system.
>
> (Shirai, 2007, p. 58)

Apart from the comparative fallacy, the process of comparing the interlanguage to a target-language norm has come under criticism, as it does not look at the various stages which lead to acquisition of a particular morpheme. Consequently, Emergence Criteria have been proposed to address this. Lakshmanan and Selinker (2001) argue that a shift in focus from acquisition to emergence could be one way to avoid the

comparative fallacy. According to Zhang (2004, p. 450), the emergence criterion aims at identifying the point at which a form makes its first systematic and productive appearance in an L2. Pienemann (1998, p. 138) defines emergence as:

> the point in time at which certain skills have, in principle, been attained or at which certain operations can, in principle, be carried out......this is the beginning of the acquisition process, and focusing on the start of this process will allow the researcher to reveal more about the rest of the process.

Palotti (2007) further develops the theoretical notion of Peinemann's construct of emergence and provides an explicit operational definition of emergence criteria.

According to Zhang (2004), a morphological inflection is viewed as having emerged if there are a minimum of four tokens in a sample and the context in which the morpheme is found varies lexically in at least two out of four tokens. While agreeing with Zhang (2004) that four is the minimal level of obligatory contexts that must be present in a sample, Palotti (2007), however, goes further than merely looking to see if a morpheme has emerged, proposing three complementary sources of evidence which can be invoked to claim that at least some uses of the grammatical morpheme are productive. The first source of evidence is the presence of morphological minimal pairs. Palotti (2007) also cites the presence of creative constructions and a high level of lexical variety of the morpheme as further evidence that uses of the grammatical morpheme are productive.

Therefore, in analysing the data from the five subjects in the current study, in addition to looking at use of a particular morpheme in an obligatory context, the study looked at the emergence and productive use of each morpheme, by looking at the presence of morphological minimal pairs, the presence of creative constructions and the level of lexical variance of the morpheme.

3.13 Summary

This chapter set the backdrop for the methodological issues that were considered by this researcher prior to and during a longitudinal case study that was carried out in order to describe the development of five grammatical morphemes, acquired by minority language children in an Irish primary school. Methodologies used in the

process of subject and site selection, recording and transcription and analysis of speech data were also described. A brief overview of the software used to analyse the data was given and this was followed by a brief introduction to the commands that were used to extract particular utterances from the transcripts. An acquisition criterion of 80% accuracy in obligatory contexts across three consecutive recording sessions was established. In order to avoid the comparative fallacy, in addition to looking at the use of the morpheme in obligatory contexts and target-like and non-target-like contexts, the emergence and productive use of each morpheme was also explored. In the next seven chapters, the findings from this data analysis will be presented and the implications these findings have on current second language acquisition theories will be discussed.

Chapter 4: The Acquisition of the English plural [-s] morpheme

4.1 Introduction

This chapter looks at the emergence and use of the plural [–s] morpheme and, in an attempt to provide a hierarchy of difficulty, will also investigate the morphological and non-morphological plural formation errors that occur in the corpus, with the aim to chart and compare the developmental stages and level of mastery of the morpheme as it occurs in the utterances of the five subjects.

4.2 The plural [–s] morpheme

The typical pattern for the formation of the past tense in English can be described as the addition of one of the three variants of the [–s] suffix to the noun to be pluralised. Whether the plural allomorph manifests itself as /-s/, /-z/ or /-es/ will be determined by the final phoneme of the noun to which the plural marker is affixed. This rule does not apply to a small number of irregular nouns, which instead undergo a stem change and do not form any particular pattern and cannot be generalised, such as the transformation of *person* to *people*, *tooth* to *teeth* or *child* to *children*. In addition to these two plural types, there are also mass nouns which, generally, are not marked for pluralisation as they are not countable. Examples of this word category are *money* and *flour*, and they are similar to zero-morpheme nouns, such as *sheep*.

The developmental pattern for the L1 acquisition of plural morphology is well understood; children typically start by producing a small number of both regular and irregular forms, free from errors, before going on to produce over-regularised forms for a small but significant number of nouns, resulting in the onset of errors, and then appear to re-learn the correct form, creating a classic U-shaped developmental profile (Marcus et al, 1992; Plunkett and Juola, 1999).

Data from the earliest morpheme studies (Brown, 1973; de Villiers & de Villiers, 1973) have indicated that the plural marker is among the first bound morphemes to be acquired by L1 English children. Cazden (1968) and Mervis and Johnson (1991), basing their evidence on L1 language learning, and Jia (2003), citing evidence from L2 learning, outline the four developmental stages that are apparent in the acquisition

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of the English plural. In the pre-plural stage, plurals are produced rarely, if at all. In the transitional pre-rule stage, regular and irregular forms are produced occasionally and free from any errors or over-regularisations. At this stage of the developmental process, the plural form is produced from rote memory, as a result of having stored unanalysed fragments of speech that have been previously heard. There is no productive rule system in operation at this developmental stage. In the transitional post-rule stage, there is a dramatic increase in the number of nouns occurring in obligatory plural contexts inflected with the plural morpheme, and evidence of a plural rule-formation system in operation can be found in the production of over-regularisations. As the rule system is productive at this stage, it can be extended to nonce forms, without having to rely on items stored in the lexical memory. The large number of regularised forms that occur in the language learners' input results in the tendency to produce regular forms for both regular and irregular cases, leading to the over-regularisation of plural forms, such as the production of *foots* rather than *feet*.

The fourth and final stage is that of plural mastery, where the morpheme is produced in 80-90% of obligatory contexts, with some errors still occasionally occurring. Bliss (2006) adds that these four stages point to a pre-rule to post-rule development, and states that based on observations of children acquiring inflectional morphology, L1 and L2 learners go through a similar developmental pattern.

4.3 Plural Morpheme Error Types

Mervis and Johnson (1991) and Jia (2003) provide a summary of the various types of morphological and non-morphological commission errors produced by learners when acquiring the plural morpheme. An analysis of this type of error will reveal much information about the rule-formation process that is in operation.

Morphological commission errors can be subdivided into two main categories; the first category is where a plural morpheme is required but omitted. This occurs when singular nouns are used in an obligatory plural context (*two shoe*) or when a required transformation in the case of an irregular noun does not take place (*two tooth*). Jia (2003) refers to these types of errors as RO errors. The second category of morphological errors results in over-regularisation, or what Jia (2003) calls OR errors. This type of error takes place when the plural marker is added to a singular noun (*a*

dogs) or when irregular plural forms are used in obligatory single contexts (*children* for *child*). Other types of OR errors are when the plural marker is attached to nouns that require a transformation (*tooths* for *teeth*), when the plural morpheme is attached to words that take a zero morpheme plural (*salmon, deer, swine*) and also occur when irregular plural forms undergo the required transformation and are then further inflected with the plural [–s] morpheme (*mices, teeths*). Over-regularisation as a result of back-formation also falls under the OR error category. This occurs when nouns that can only be used in their plural form are used in a singular context, with the plural [–s] morpheme deleted (*scissor, trouser, jean, pyjama*).

Non-morphological error and arise when the plural suffix is attached to non-nouns, such as adjectives and quantifiers or also occur when, in pluralising compound nouns, both nouns in the compound are marked by the plural morpheme.

4.4 Methodology

In order to investigate the acquisition trajectory of the plural morpheme as it occurs in the utterances of the five subjects, all clear examples of plural tokens, both correct and erroneous, were extracted from the data using KWAL, FREQ and COMBO commands in the CLAN programme. The total number of tokens analysed per subject ranged from 134 tokens to 224 tokens. In addition to extracting plural tokens that occurred in the data, all obligatory contexts, where a plural marker was required but not supplied, were identified, such as nouns preceded by a quantifier (*two baby*) or a plural-referent pronoun (*do you know those one?*). A qualitative analysis of errors was performed and extracted plurals were coded as being either correct, or containing either morphological or non-morphological errors.

Following Mervis and Johnson (1991), morphological errors were coded into the following error categories:

1. Error Type 1: Addition of the regular plural ending to a mass noun: *monies*
2. Error Type 2: Double marking of an irregular plural; (*teeths, peoples*).
3. Error Type 3: Addition of the regular plural morpheme to a noun that takes a zero-morpheme plural: *sheeps*.
4. Error Type 4: Addition of the regular plural morpheme to a noun that takes an irregular plural: *tooths, foots*.

5. Error Type 5: Back formation of a dual or count noun whose singular form ends in /s/ or /z/, leading to deletion of the final /s/ or /z/ when referring to a single referent: *tight* for *tights*.
6. Error Type 6: Addition of the regular morpheme to a non-noun: *yellows*.

Inappropriate forms were subdivided into the following 5 categories:

1. Error Type 7: Plural form of a count noun in an obligatory singular context.
2. Error Type 8: Singular form of a count noun in an obligatory plural context
3. Error Type 9: Double marking in compound nouns
4. Error Type 10: Plural form of an irregular noun to refer to a single referent
5. Error Type 11:Singular form of an irregular noun in an obligatory plural context

In analysing the acquisition of the plural [–s] morpheme, the following cases were omitted from analysis:

1. Pluralised noun preceded or succeeded by unintelligible speech (xxx days),
2. The plural of *lot* and *load* were not considered, as they were mainly used as quantifiers (*lots of sweets / loads of animals*)
3. Plural forms of *age*, *way*, and *sometime*.
4. Plural marker followed by a word starting with *s* (*boys stays / beans stuff / girls stuff*)
5. The plural of *one* (*a lot of ones*)
6. Words where it was not possible to tell if the word was functioning as a noun or a verb (*just rhymes / stings in there*)
7. Nouns preceded by a number, where it was difficult to decipher if the number was a quantifier or had adjectival properties (*I remember five card, now my number six card*)
8. Nouns preceded by the word *one*, where it was unclear if *one* was functioning as a quantifier or a pronoun (*have eh that one circles / the girl catch that one pirates*)
9. In line with official practice followed in English language EU legislation and following guidelines from the European Commission Translation Service (ECTS), which states that the plurals of both *euro* and *cent* are to be written without [–s], the word *euro* was omitted from analysis.
10. Words that were immediate repetitions, where it was clear that the subject did not know the word, and consequently, it could not be ascertained if the word was intentionally marked for pluralisation (*what's piranhas?*)

In addition to looking at the correct use of the morpheme in an obligatory context and the morphological productivity in the form of over-regularisations, issues relating to lexical productivity, selectivity and contrastivity were also explored, following Rice and Oetting (1993). Lexical productivity is a useful way of investigating whether a spuriously high percent of correct usage is a factor of relatively few inflected stems

being used with a high frequency, as a result of the inflection being produced from rote memory. It measures the number of different stems that are inflected with the morpheme, which is also called the lexical variance. Selectivity looks at whether the morpheme is attached to the correct word class, in this case, the plural [–s] morpheme attached to a noun stem. Contrastivity looks at the appropriate use of the morpheme, and provides evidence that language learners can recognise the distributional properties of plural marking, which require the use of plurals for plural referents and zero marking for singular referents (Rice and Oetting, 1993). This study investigates the notion of contrastivity by looking for instances where the plural marker is applied in an obligatory singular context, or zero marking applied in an obligatory plural context. Morphological errors provide evidence of the language learners' productive use of the morpheme, by examining the occurrence of over-regularisations in the corpus.

4.5 Results- Acquisition Trajectory for each subject

4.5.1 HIC

There is a total of 187 plural [–s] tokens in the corpus of HIC, occurring with 71 different lexical items (Table 4.1). Out of the 71 lexical items, there is one irregular (*teeth*), two mass nouns (*money* and *paint*), one zero-morpheme noun (*sheep*), one dual noun (*stairs*) and two adjectives (*yellow* and *purple*). All other lexical items are regular count nouns.

Table 4.1 Number of plural [-s] tokens and lexical items in each recording cycle									
Plural Tokens	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8	Total
	5	4	7	24	19	29	50	49	**187**
Lexical Items	4	3	5	18	15	15	32	26	**71***

*Some lexical items occur in more than one recording cycle

Out of the 187 plural tokens in the corpus, there is a total of 18 errors relating to the plural [–s] morpheme, resulting in an accuracy use of 90%. An error analysis was conducted on the 18 errors. Four of the errors occur with irregular nouns and fourteen occur with regular count nouns (Table 4.2).

	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8
Table 4.2: Number of Plural [-s] Tokens, with number of errors for regular and irregular nouns **Figure in brackets shows the number of number of errors occurring in that category**								
No. of regular plural tokens	4(0)	4 (0)	6 (3)	23 (3)	18 (1)	28 (1)	49 (4)	47 (2)
No. of irregular plural tokens	1 (0)	0 (0)	1(0)	1 (1)	1 (1)	1 (0)	1 (1)	2 (1)
Total	5 (0)	4 (0)	7 (3)	24 (4)	19 (2)	29 (1)	50 (5)	49 (3)
% correct	**100%**	**100%**	**57%**	**83%**	**89%**	**97%**	**90%**	**94%**

Error types fall into four categories. There are 4 cases of over-regularisations, two relate to the addition of the regular plural ending to a mass noun (1) and two relate to the addition of the plural marker to a zero-morpheme noun (2). There are eight cases where a plural form of a count noun is used in an obligatory singular context (3). There are six cases of inappropriate use of the plural morpheme in a compound word (4).

(1) *Error Type 1: addition of regular plural morpheme to a mass noun*
    he counted the [/] the ehm **monies** [5]
    I want **paints** [8]

(2) *Error Type 3:addition of regular plural morpheme to a noun that takes a zero-morpheme plural*
    rabbits and **sheeps** [4]
    the other **sheeps** [7]

(3) *Error Type 7: plural form of count noun in obligatory singular context*
    she for [/] for **a girls** [3]
    barbie is for **a girls** [3]
    and get **a eggs** [4]
    he's a hurt **some bodies** [4]
    bring **a cakes** for school [5]
    he licking **his bellies** [6]
    close it with **a keys** [7]
    he's get in his babies **bellies** [7]

(4) *Error Type 9:double marking in compound nouns*
    toys airplane [3]
    babies tiger not hurt [4]
    and he says the babies dogs [8]
    boats man [8]
    animals doctor [7]
    animals doctor [7]

There is evidence of knowledge of the singular and plural form of the noun *sheep* in (5a) and in (5b), the mass noun, *money*, occurs marked and unmarked by the plural morpheme. While the plural of the irregular *teeth* occurs five times in the data, there is no evidence of knowledge of the single form *tooth* (6).

(5a) There is a mouse and **a sheep** [4]
　　And rabbits and **sheeps** and cow [4]
　　Cut them with **sheep** and ehm the other **sheeps** [7]

(5b) And the ehm dog he counted <the> [/] the ehm **monies** [5]
　　he want get **money**, he <ever > [/] ever somebody didn't get his **money** (a)gain [7]

(6) Because my **teeth** are broke [1]
　　Yeah get my **teeth** # off [3]
　　Yeah and look my **teeth** [4]
　　In the glass is ehm granny's <glass> [//] ehm **teeth** [6]
　　(be)cause my **teeth** was xxx [8]

4.5.2 AND

There are 224 plural tokens in AND's data, occurring with 85 different lexical items, four of which are irregular nouns (*child*, *foot*, *person* and *tooth*), there is one mass noun (*chalk*) and one dual (*pants*) (Table 4.3).

Table 4.3 Number of plural [-s] tokens and lexical items in each recording cycle							
Plural Tokens	AND1	AND2	AND3	AND4	AND5	AND6	Total
	56	49	31	23	26	39	224
Lexical Items	24	31	15	14	17	20	85*

*some lexical items occur in more than one recording cycle

Out of the 224 plural tokens, there are a total of 17 errors, relating to the plural [-s] morpheme. This results in an accuracy of 92%. Thirteen of the errors occur with regular nouns and four of the errors are from the plural inflection of irregular nouns (Table 4.4).

Table 4.4: Number of Plural Tokens, with number of errors for regular and irregular nouns						
Figure in brackets shows the number of number of errors occurring in that category						
	AND1	AND2	AND3	AND4	AND5	AND6
No. of regular plural tokens	49(1)	48 (8)	28 (0)	22 (2)	22 (2)	38 (0)
No. of irregular plural tokens	7 (1)	1 (0)	3(0)	1 (1)	4 (1)	1 (1)
Total	56 (2)	49 (8)	31 (0)	23 (3)	26 (3)	39 (1)
% correct	96%	84%	100%	87%	88%	97%

An error analysis on the data reveals a total of four error categories. Out of the 17 errors that occur, only 4 are morphological, comprising of one error resulting from the inappropriate inflection of a mass noun with the plural [-s] morpheme (7) and three errors resulting from the double marking an irregular plural noun (8). The remaining 13 errors are from the inappropriate use of the plural marker. Eight of the errors are from the use of the plural form of a count noun in an obligatory singular context (9) and five errors are the result of compounding (10).

(7) *Error Type 1: Addition of the regular plural ending to a mass noun*
    my chalks [5]

(8) *Error Type 2: Double marking of an irregular plural noun*
    him got big teeths [1]
    feets line [4]
    him feets [6]

(9) *Error Type 7: plural form of count noun in obligatory singular context*
    write im [: him] names [1]
    A clowns [2]
    Like a sausages [2]
    That is not sandwiches [2]
    Oh look that things [4]
    That things [4]
    With that things in their back [5]
    Because that things you know [5]

(10) *Error Type 9: double marking in compound nouns*
    bananas chocolate, no and bananas milk and strawberries milk and strawberries yogurt [2]
    potatoes chips [2]

Out of the 17 irregular nouns marked for pluralisation, there are 13 cases of these irregular nouns correctly inflected with the plural [–s] morpheme (11).

(11) four feet [1]
    Him got big, big teeth [1]
    I got a lot children to play [1]
    My two teeth is fall [1]
    You eating a lot of sweets the teeth give will broke [1]
    Only for children [1]
    You do what your feet like that [2]
    Two feet and xxx two feet and xxx two feet [3]
    Japanese people [5]
    It's only people [5]
    Whose teeth [5]

4.5.3 ELV

There is a total of 188 plural [–s] tokens in ELV's data, occurring with a total of 75 different lexical items (Table 4.5). Out of the 75 different lexical types, four irregular noun-plurals occur in the data (*feet*, *men*, *people* and *teeth*) and two mass nouns (*money* and *fish*). The remaining 69 lexical types are regular count nouns.

Table 4.5									
Number of plural -s tokens and lexical items in each recording cycle									
Plural Tokens	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Total
	7	31	23	53	26	21	14	13	**188**
Lexical Items	5	19	18	25	13	12	10	10	75*

    *Some lexical items occur in more than one recording cycle

Out of the 188 plural tokens, there are 25 errors in the data relating to the plural [–s] morpheme, resulting in an accuracy level of 87%. However, if the plural formation of two mass nouns is excluded from the calculation, it will result in an accuracy level of 95%. The anomaly occurs in the fourth cycle of ELV's data, and is a result of the incorrect plural formation of the mass nouns *money* and *fish*. *Money* appears as *moneys* on twelve occasions and *fish* appears as *fishes* four times. Five of the errors occur with regular nouns and twenty errors occur with irregular count nouns (Table 4.6).

Table 4.6: Number of Plural Tokens, with number of errors for regular and irregular nouns Figure in brackets shows the number of number of errors occurring in that category								
	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8
No. of regular plural tokens	5(0)	29 (1)	20 (1)	32 (1)	21 (2)	20 (0)	14 (0)	11 (0)
No. of irregular plural tokens	2 (0)	2 (0)	3(0)	21 (17)	5 (3)	1 (0)	0(0)	2 (0)
Total	7 (0)	31 (1)	23 (1)	53 (18)	26 (5)	21 (0)	14 (0)	13 (0)
% correct	100%	97%	96%	66%	81%	100%	100%	100%

An error analysis was carried out on the data of ELV and errors fell into 3 categories. There are seventeen morphological (OR) errors relating to the addition of the plural [–s] to a mass noun (12), all of which occur in cycle four. However, there is evidence in the data of a mass noun occurring correctly in a plural context, when the utterance *there's loads of cement* occurs in cycle 3 and cycle 8. Seven errors concern the inappropriate use of the plural morpheme in an obligatory singular context (13). In the last three examples shown in (13), there is evidence that ELV does not know the singular form of the irregular plural *teeth*, as in these three examples, *teeth* is used to refer to the single referent *tooth*. There is also no other evidence in the data of knowledge of the word *tooth*. One error in the data concerns the use of the plural morpheme in a compound word (14).

(12) *Error Type 1 : addition of regular plural morpheme to a mass noun*
   tell her <to get> [//] to take monies [4]
   My friend has fish, but not big fishes, small fishes [4]
   There's fishes in there [4]
   I have loads of monies [4]
   <where> [>] you put monies [4]
   You put monies in it [4]
   I have only red monies [4]
   I have loads of monies [4]
   Find my thing where you throw monies [4]
   Give all those monies to my mam [4]
   My dad has loads of monies [4]
   The monies are in the bank [4]
   My dad's monies [4]
   He has loads of monies [4]
   I catched fishes [4]
   Fishes [4]

(13) *Error Type 7: plural form of a count noun in an obligatory singular context*
   a snakes [2]
   I want to get this things [3]
   What is this cards for [4]
   Always sitting on a big chairs [5]
   I eat loads of sweets with this teeth [5]
   They'll pull <my> [//] this teeth out [5]
   I not allowed eat with this teeth [5]

(14) *Error Type 9: double marking in compound noun*
   bumpers cars [5]

There is evidence of productive use of the plural formation process in operation in (15), with the noun *spookie*, which ELV uses to refer to rabbit droppings. This is pluralised in the data to *spookies*, which he is unlikely to have heard in his input.

(15) his spookies, they're just small [4]

4.5.4 AME

There are 199 plural tokens in AME's data, and a total of 102 different lexical items, four of which are irregular count nouns (*people*, *teeth*, *women* and *firemen*), and four are mass nouns (*clothes*, *fish*, *flour* and *glass*) (Table 4.7). The remaining 94 lexical items are regular count nouns.

Table 4.7									
Number of plural -s tokens and lexical items in each recording cycle									
Plural Tokens	**AME1**	**AME2**	**AME3**	**AME4**	**AME5**	**AME6**	**AME7**	**AME8**	**Total**
	49	16	26	28	26	32	4	18	**199**
Lexical Items	28	11	18	20	20	23	4	12	102*

   *Some lexical items occur in more than one recording cycle

Out of the 199 plural contexts in the data, there are a total of 13 errors, leading to an accuracy order of 94%. Eight of the errors arise from the plural inflection of regular count nouns and five of the errors occur from the plural inflection of irregular nouns (Table 4.8).

Table 4.8: Number of Plural Tokens, with number of errors for regular and irregular nouns
Figure in brackets shows the number of number of errors occurring in that category

	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8
No. of regular plural tokens	44(2)	13 (0)	24 (2)	25 (0)	25 (0)	28 (3)	4 (0)	17 (1)
No. of irregular plural tokens	5 (1)	3 (0)	2(0)	3 (2)	1 (0)	4 (2)	0(0)	1 (0)
Total	49 (3)	16 (0)	26 (2)	28 (2)	26 (0)	32 (5)	4 (0)	18 (1)
% correct	94%	100%	92%	93%	100%	84%	100%	94%

An error analysis was conducted on the data, revealing three error categories. Five errors are morphological, resulting from the addition of the regular plural ending to a mass noun (16). One error is from the use of the plural form of a count noun in an obligatory singular context (17) and seven errors result from the use of a singular form of a count noun in an obligatory plural context (18).

(16) *Error Type 1: addition of regular plural ending to a mass noun*
　　　ehm fishes [1]
　　　He stole clothses [4]
　　　They make flours, butter and egg [4]
　　　They sell wood with something with glasses [6]
　　　Clothses shop [6]

(17) *Error Type 7: plural form of count noun in obligatory singular context*
　　　a sandwiches [1]

(18) *Error Type 8: singular form of a count noun in an obligatory plural context*
　　　one sister and three brother [1]
　　　loads of thing [3]
　　　has to get bags or hat to people [3]
　　　lots of chair [6]
　　　two of them have orange jacket [6]
　　　two of them have blue jacket [6]
　　　two sweetie [8]

There are fourteen tokens of irregular nouns correctly inflected for plural marking; all undergoing the necessary stem transformation (19).

(19) There's Arabic people like me [1]
　　　Eh Arabic people [1]
　　　And people was coming and people was killing him [1]
　　　Trying to wash his teeth [2]
　　　He can wash his teeth [2]
　　　Look at their teeth [2]

She cuts people hair [3]
Have to get bags or hat to people [3]
Only when people are not very bad [4]
Does he fight # people [5]
Four firemen [6]
I don't like women [6]
My teeth are very strong [8]

4.5.5 SAR

There are 134 plural tokens in SAR's data, and 86 different lexical items are inflected with the plural [–s] morpheme (Table 4.9). Three of the lexical types are irregular nouns (*child*, *person* and *tooth*) and four are mass nouns (*clothes*, *money*, *stuff* and *work*). All other lexical items are regular count nouns.

Table 4.9 Number of plural [-s] tokens and lexical items in each recording cycle									
Plural Tokens	SAR1 16	SAR2 4	SAR3 27	SAR4 22	SAR5 22	SAR6 19	SAR7 5	SAR8 7	SAR9 12	Tot 134
Lexical Items	13	4	22	16	16	12	4	7	8	86*

*Some lexical items occur in more than one recording cycle

Out of the 134 plural tokens, there are a total of 27 errors, resulting in an accuracy of 80%. Out of the 27 errors, eight occur with regular count nouns and 19 of the errors occur with irregular and non-count nouns (Table 4.10).

Table 4.10: Number of Plural Tokens, with number of errors for regular and irregular nouns Figure in brackets shows the number of number of errors occurring in that category									
	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9
No. of regular plural tokens	12 (0)	3 (0)*	24 (4)	17 (2)	18 (0)	16 (1)	5 (1)	6 (0)	10 (0)
No. of irregular plural tokens	4 (3)	1 (0)*	3 (3)	5 (5)	4(4)	3 (3)	0(0)	1 (0)	2 (1)
Total	16 (3)	4 (0)*	27 (7)	22 (7)	22 (4)	19 (4)	5 (1)	7 (0)	12 (1)
% correct	81%	100%*	74%	68%	82%	79%	80%	100%	92%

*Following Palotti (2007), 4 is the minimum number of tokens required in a recording cycle to be included in analysis

A total of eight error categories occur in the data. There are 16 morphological errors. Twelve of these errors are from the addition of the regular plural ending to a mass

noun (20), one error is from the double marking an irregular plural noun (21), two are from the addition of the regular plural ending to a noun that takes a zero morpheme plural (22) and one error is from the addition of the regular plural ending to a noun that takes an irregular plural (23). Eleven of the errors were coded as being inappropriate use of the plural morpheme. Three of these errors are from the inappropriate use of the plural form of a count noun in an obligatory singular context (24), four errors are from the inappropriate use of a singular form of a count noun in an obligatory plural context (25), three of the errors are from the inappropriate use of the plural form of an irregular noun to refer to a single referent (26) and one error is the result of using a singular form of an irregular noun in an obligatory plural context (27).

(20) *Error Type 1: addition of regular plural ending to a mass noun*
    know the clothses, I had to wear them [1]
    The people that bring me clothses, I needed to wear them [1]
    I did my works, did maths [3]
    A shopkeeper gets ehm loads monies [3]
    And we can ask for monies [3]
    Jack was hiding in [/] in the monies part [4]
    He could get some special stuffs to do something [4]
    Jack got some monies [4]
    She didn't pay monies [4]
    They sell clothses [5]
    And it has clothses [5]
    There's a woman paying monies [5]

(21) *Error Type 2: double marking of an irregular plural noun*
    she checks peoples [5]

(22) *Error Type 3: addition of the regular plural morpheme to a noun that takes zero morpheme plural*
    who has sheeps [6]
    I have sheeps [6]

(23) *Error Type 4: addition of regular plural morpheme to a noun that takes an irregular plural*
    eh the big persons [4]

(24) *Error Type 7: plural form of count noun in obligatory singular context*
    there's a bears [3]
    A nice rings [4]
    Some boys have one earrings [4]

(25) *Error Type 8: singular form of count noun in obligatory plural context*
    butterfly, I love butterfly [3]
    Two baby [6]
    Cavita, Sangita are sister [7]

(26) *Error Type 10: plural form of irregular noun to refer to single referent*
my mum sawed a mice [1]
There was a people there [3]
My teeth this one was wobbling [6]

(27) *Error Type 11: singular form of an irregular noun in an obligatory plural context*
it's only two person can play that [9]

Out of the 24 irregular noun plurals that occur in SAR's data, only four are well-formed (28).

(28) the people that bring me [1]
Brushing the teeth [2]
And her children are coming [8]
You might be asking some people [9]

4.6 Conclusion

This chapter explored the acquisition of the plural [–s] morpheme as it occurred in the corpus of the five subjects. Onset of use of the morpheme was early, with only slight variation in individual growth rates. As with other morphemes in this study, if we define mastery of a morpheme as over 80% correct use in obligatory contexts across three consecutive recordings where there are at least five usages in each sample (Jia and Fuse, 2007), then it can be said that ELV, AND and AME achieved mastery at the third recording, HIC mastered the morpheme at the sixth recording and SAR achieved mastery on the ninth recording. SAR also produced the smallest number of plural tokens and had the largest number of error categories, when compared to the other four subjects. This is an interesting finding as SAR appeared to be the subject whose interlanguage seemed to be closer to the target language when compared with the other subjects.

Similarly, AND, the subject whose interlanguage seemed to diverge more from the target language when compared to the other five subjects, had the highest number of plural tokens (224 tokens), with only 17 errors, while SAR, whose language fluency appears higher, had 134 plural tokens and 27 errors. This would suggest that both of these subjects are at opposite ends of the U-shaped developmental curve, with AND producing more forms free from errors and at a stage where over-regularisations are only starting to be produced. SAR,   on the other hand, is further advanced on this curve, with 16 tokens of over-regularisation, compared with 4 from AND. SAR also

had the largest number of error categories when compared with the other four subjects in the study. As a group they demonstrated a high level of accuracy, and in addition, demonstrated lexical and morphological productivity, selectivity and contrastivity of use.

In the data of all five subjects, a total of 100 errors occurred with plural inflection. The error with the highest frequency was the addition of the regular plural morpheme to a mass noun (37%). The second highest error was non-morphological (27%), resulting from the use of the plural form of a count noun in an obligatory singular context. Table 4.11 shows a detailed breakdown of the percentage of all error types in the data of the five subjects. Eleven possible errors were identified prior to coding the data. Two of these, specifically, the back formation of a dual or count noun whose singular form ends in /s/ or /z/, leading to the deletion of the final /s/ or /z/ when referring to a single referent, and the addition of the regular plural ending to a non-noun, did not appear in any of the five subjects' utterances.

Table 4.11 Percentage frequency of error categories in total corpus	
Morphological Errors	
Addition of the regular plural ending to a mass noun	37%
Double marking of an irregular plural	4%
Addition of the regular plural to a noun that takes a 0-morpheme plural	4%
Addition of regular plural ending to noun taking irregular plural	1%
Non-morphological Errors	
Plural form of count noun in obligatory singular context	27%
Singular form of a count noun in an obligatory plural context	11%
Double marking in compound nouns	11%
Plural form of an irregular noun to refer to a single referent	3%
Singular form of irregular noun in obligatory plural context	2%

Mass nouns, rather than irregular nouns that undergo a stem change in their plural form, had the highest frequency, accounting for 37% of all errors in the total corpus. If we include zero-morpheme nouns into this category, based on the fact that their plural form is also identical to their singular form, this figure rises to 41%.

Much of the literature on the acquisition of plural morphology draws on the similarities with the inflectional route of past tense morphology, due to the similar acquisitional characteristics (Clahsen, Lück and Hahne, 2007; Maslen, Theakston,

Lieven and Tomasello, 2004; Marchman, Plunkett and Goodman, 1997; Marcus, 1996; Plunkett and Juola, 1999). The acquisitional characteristics that the two morphemes have in common that justify a common discussion on both morphemes include error categories, such as over-regularisation, and a similar U-shaped developmental curve. For this reason, the implications arising from the findings from this chapter will not be discussed until after the findings on past tense formation have been presented in the following chapter. Chapter six will then discuss the implications the findings from both of these chapters have on current L2 acquisition theories.

Chapter 5: The Acquisition of the Past Tense Marker

5.1 Introduction

This chapter discusses the acquisition trajectory of the past tense marker with respect to both regular and irregular verbs as they occur in the corpus of the five subjects. In addition to conducting an error analysis on the past tense morpheme, the use and emergence of the past tense will be explored, in order to establish the level of acquisition attained by each subject.

5.2 The Past Tense Morpheme

The pattern for the formation of the vast majority of past tense verbs in English can be described as the addition of one of the three allomorphs of the [–ed] suffix to the verbal stem. This rule, however, does not apply to irregular verbs, which instead undergo a stem change and do not form any particular pattern and cannot be generalised. Although there are five different patterns whereby a verb can be inflected into the past tense, for most words only a single pattern is considered correct. There can be suppletion of the base form (*go-went*), the past tense can be identical to the stem (*let, put, cut*), the verb can be marked in the past tense by a change in vowel (*drink-drank, sing-sang*), can undergo a complete transformation (*bring-brought, think-thought*) or can take the [–ed] suffix (*talk-talked*).

The acquisition pattern for past tense does not differ significantly from that of noun-plural regularisations, with both past tense and plural inflections displaying a similar U-shaped profile, as discussed in the previous chapter. For further discussions on the similarities in the patterns of acquisition for the two morphemes, see Marcus (1995). As previously discussed in chapter 4, language learners will initially produce a small number of regular and irregular verbal forms, free from errors, before producing over-regularised verbal forms resulting in errors. They finally start producing forms free from errors, resulting in the classic U-shaped developmental curve, as observed in the acquisition of noun-plural inflections.

5.3 Methodology

Using FREQ, KWAL and COMBO commands from CLAN, all subject utterances containing correct and incorrect past tense verbal utterances were extracted from the data. This included both regular and irregular verbal forms. In addition to this, utterances that were not marked for past tense but occurred in a past tense context were identified, by carrying out a visual inspection of hard copies of all utterances in the corpus. Utterances containing the verb *got* were omitted from the analysis, as in colloquial speech, this can refer to present tense events. Irregular verbs where the past tense of the verb is the same as the stem (no-change verbs), such as *hit, cut, let, hurt* and *put,* where also excluded from analysis.

As with the acquisition of plurals in the previous chapter, the acquisition of the past tense morphology in this chapter follows Rice and Oetting (1993), and looks at the notions of the correct use of the [-ed] morpheme in an obligatory context, lexical productivity, selectivity, contrastivity and morphological productivity in the form of over-regularisations. Lexical productivity looks at the number of different verbs that are marked for past tense. Selectivity looks at whether the morpheme is attached to the correct word class, in this case, the past [–ed] morpheme attached to a verb stem. Contrastivity looks at the appropriate use of the past tense morpheme, and explores whether the morpheme is used in an obligatory past tense context or whether, for example, the past tense occurs with a word such as *tomorrow*. Morphological errors provide evidence of the language learners' productive use of the morpheme, by examining the occurrence of over-regularisations in the corpus.

All obligatory cases requiring past tense marking were identified and coded as either being correct, or containing the following morphological and non-morphological categories:

Morphological errors
1. Error Type 1: [-ed] added to past irregular verb
2. Error Type 2: [-ed] added to irregular stem
3. Error Type 3: Irregular ending added to regular stem

Non-morphological errors
1. Error Type 4: Use of the root form in an obligatory past context
2. Error Type 5: Use of the past tense in an obligatory present context
3. Error Type 6: Use of future tense in an obligatory past context

4. Error Type 7: Use of progressive in an obligatory past context
5. Error Type 8: Double marking in past tense negative formation
6. Error Type 9: Double marking in past tense formation (*was saw*)
7. Error Type 10: Omission of past tense in obligatory context
8. Error Type11: Inappropriate use of an auxiliary verb in past tense context (singular auxiliary in plural context, commission and omission of auxiliary, present auxiliary in past context and past auxiliary in present context)
9. Error Type 12: Inappropriate past formation strategies (*was + verb, got + verb, is + verb, is + was*)
10. Error Type 13: Use of past tense as adjective or use of adjective in obligatory past context
11. Error Type 14: Inappropriate use of did (*didn't taken, I done that*)

From this analysis, the percentage of obligatory contexts that were correctly marked for past tense was calculated for each subject across all cycles. As with other morphemes in this study, acquisition criteria were set at over 80% of correct use of past tense marking in obligatory contexts across three consecutive recordings where there are at least five tokens in each sample (Jia and Fuse, 2007).

While this analysis focused on all obligatory contexts, including those where no marking was evident, a second, more in-depth analysis was conducted on verbs that had been inflected for past tense. The purpose of this analysis was to establish what elements were being inflected for past tense reference. Following differing criteria set by Kuczaj (1977), Maratsos (2000) and Marcus et al. (1992), the following verbs were excluded from this analysis of the past tense verbal inflection:

1. Irregular verbs where the past tense of the verb is the same as the stem, such as *hit, cut, let, hurt* and *put*.
2. Forms of the copula *be*, such as *was, were* and *wasn't*. It has long been documented in the literature that the copula be classified as a special class of verb (Chomsky, 1965; Fillmore, 1968 and Lyons, 1968) or an auxiliary verb.
3. The verbs *do* and *have*, as they can function as both auxiliary and main verbs.
4. The past tense *got*. In colloquial speech, *got* is often used to refer to present tense events, as in *I got it* to mean *I have it*.

5.4 Results- Acquisition Trajectory for each subject

5.4.1 HIC

The occurrence of past tense in obligatory contexts

There are a total of 342 obligatory cases requiring past tense marking in HIC's data. Table 5.1 shows the breakdown of obligatory contexts and the number of errors for each recording cycle. Out of the total number of obligatory contexts, there are 157 errors. The largest error category is where the root form is used in an obligatory past tense context, accounting for 118 errors (75%), a sample of which are illustrated in (1). Other main strategies used for past-tense formation employed by HIC include double marking in the formation of the negative which occurs 4 times (2) and that of *was + verb*, occurring 8 times in the corpus (3). Errors resulting from the inappropriate use of an auxiliary are in (4) and account for 3 errors. Morphological errors, of which there are 20, will be discussed in detail in the following section which looks at verbs that have been inflected for past tense.

(1) *Error Type 4: Use of root form in an obligatory past context*
   HIC: I go to the dentist and the dentist give me a sticker [5]
   [when asked where he got the sticker on his sweater]
   HIC: she scratch me yesterday [6]
   HIC: I sing it yesterday [6]
   HIC: I fall off and was bleeding yesterday [7]

(2) *Error Type 8: Double marking in past tense negative formation*
   HIC: he didn't slapped him [6]
   HIC: you didn't sawed him [7]
   HIC: Miss_Lynch didn't seed him [7]
   HIC: I didn't bringed him [7]

(3) *Error Type 9: Inappropriate past tense formation strategies*
   HIC: I was go in the park [6]
   HIC: yesterday was shake me [8]
   HIC: my dad was get this off [8]
   HIC: my mouth was bleed [8]

(4) *Error Type 11: Inappropriate use of the auxiliary verb in past tense context*
   HIC: and they**'re** fell off [1]
   HIC: my holidays **am** goed in the school [4]
   HIC: I **am** eating my lunch [referring to past tense event] [7]

Following acquisition criteria as defined by Jia and Fuse (2007), it can be established that HIC has not yet achieved mastery of the past tense marking.

Table 5.1
Number of obligatory past tense contexts and number of errors in each recording cycle

Obligatory Contexts	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8	TOT.
	5	15	6	23	20	47	100	126	**342**
No. of errors	1	13	3	12	7	22	39	60	**157**
% correct	80%	13%	50%	48%	65%	53%	61%	52%	

Verbal Tokens inflected for Past Tense

There are 133 tokens inflected into the simple past in HIC's data, 97 (73%) are irregular verbs and 36 (27%) are regular verbs. There is a lexical variance of 36, 22 of which are irregular verbs and 14 are regular. The number of tokens inflected for past tense and the lexical variance is given in Table 5.2. *Say* is the verb occurring with the highest frequency (29 tokens), followed by *fall* (14 tokens), *see* (10 tokens), *go* (7 tokens) and *look* (5 tokens). In addition, there is one novel verb, *upped*, which occurs as the past tense of *to raise something up*, showing evidence of the productive use of past-tense rule formation.

Table 5.2
Number of tokens inflected for past tense and lexical variance in each recording cycle

Past Tense Tokens	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8	Total
	5	4	3	14	13	21	28	45	**133**
Lexical Items	1	3	2	8	10	13	11	14	**36***

*Some lexical types occur in more than one recording cycle

Table 5.3 illustrates the breakdown of errors as they occur with both regular and irregular verbs. Out of the total number of verbs that are inflected for the simple past, 84% are correctly inflected. One regular verb out of a total of 36 tokens is incorrectly marked, as it occurs inappropriately with an auxiliary verb (*here's slapped him*). Out of the 97 irregular verbs that are inflected for past tense, there are 21 errors, which fall into two categories; over-regularisations and the inappropriate use of an auxiliary verb with the simple past. There are 20 morphological errors, 19 resulting from the [-ed] morpheme being attached to the stem of an irregular verb (5), this includes one novel verb *up*. One morphological error is a result of the [-ed] morpheme being attached to an irregular verb that has correctly been inflected into the past tense (6).

(5) *Error Type:Over-regularisation [OR]- [-ed] attached to the stem of an irregular verb*
    HIC: the shop bringed [/] **bringed** the [/] the play+station [2]
    HIC: the **heared** him his friend [3]
    HIC: my holidays am **goed** in the school [4]
    HIC: and him eh **writed** see some xxx the book [4]
    HIC: I **buyed** it [5]
    HIC: he **runned** away [6]
    HIC: one **throwed** it and one **catched** it [6]
    HIC: he say hurra:y and **eated** dinner [6]
    HIC: he **upped** to the boat [6]
    HIC: mum **bringed** him yesterday [7]
    HIC: the monster **breaked** <the the> [/] windows [7]
    HIC: Miss_Lynch didn't **seed** him [7]
    HIC: yesterday she **goed** in the hospital and my dad he **goed** in the builder [7]
    HIC: I didn't **bringed** him [7]
    HIC: I don't **bringed** him [7]
    HIC: he **throwed** them [8]
    HIC: the babies dogs **taked** them [8]

(6) *Error Type:Over-regularisation [OR] - [-ed] attached to the inflected stem of an irregular verb*
    HIC: you didn't **sawed** him [7]

Table 5.3: Number of past tense tokens, with number of errors for regular and irregular verbs Figure in brackets shows the number of errors occurring in that category								
	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8
No. of regular past tense tokens	0	2 (0)	0	4 (0)	7 (0)	9 (1)	4 (0)	9 (0)
No. of irregular paste tense tokens	5 (1)	2 (1)	3(1)	10 (2)	6 (1)	11 (5)	24 (8)	36 (2)
Total	5 (1)	4 (1)	3 (1)	14 (2)	13 (1)	20 (6)	28 (8)	45 (2)

There is evidence in cycle 7 of the simultaneous use of *see, saw, seed* and *sawed* (7)
and *(didn't) bring / (didn't) bringed* (8).

(7) you didn't sawed him [7]
    Miss-Lynch didn't seed him [7]
    I see my mam [referring to his mother watching school concert the previous night] [7]
    I saw them [7]

(8) bring him to school yesterday [7]
    I didn't bringed him [7]
    I don't bringed him [7]
    Mum bringed him [7]
    My dad didn't bring me [7]
    I didn't bring my jacket [7]

5.4.2 AND

The occurrence of past tense in obligatory contexts

There are 266 obligatory cases in AND's data that require marking for past tense, with 128 errors. Table 5.4 illustrates the number of obligatory contexts and the corresponding number of errors as they occur in each of AND's six cycles. A total of 49 errors (38%) result from the use of the root form in an obligatory past context (9). The use of the past tense in an obligatory present tense context accounts for 11% of errors and 48 errors (38%) are from an incorrect strategy AND frequently uses to express the past tense, that of *was + verb,* a sample of each error type is given in (10) and (11) respectively. Other errors include the inappropriate use of an auxiliary with the past tense (13%). Examples of these are given in (12). There are no morphological errors in past tense marking in AND's data.

Table 5.4 Number of obligatory past tense contexts and number of errors in each recording cycle							
Obligatory Contexts	AND1 83	AND2 79	AND3 59	AND4 16	AND5 11	AND6 18	Total 266
No. of errors	48	40	28	1	5	6	128
% correct	42%	49%	53%	94%	55%	67%	

(9) *Error Type 4: use of the root form in an obligatory past context*
  AND: I **see** him on the tvision [: television] 1/ [when asked if he ever saw an elephant]
  AND: everyone **give** me sweets where I **go** to the house and **say** boo [1]
    [when asked what he did on Halloween night]
  AND: I was baby I **drink** little milk [1]
  AND: my daddy **bring** me to the shop to cut me my hair [2]
    [when asked who cut his hair]
  AND: brown I **tell** you [6]
    [when telling interviewer that he already said his dog is brown

(10) *Error Type 5: Use of past tense in an obligatory present tense context*
  AND: because of you eating a eating a lot of sweets the teeth give will **broke** [1]
  AND: now it **was** my mommy birthday [2]
  AND: but I will **forgot** [4]

(11) *Error Type 9: Incorrect past tense formation strategies*
  AND: I **was know** something scary [1]
  AND: it **was have** red eyes [1]
  AND: the cat it **was see** a tree [2]
  AND: I **was be** in the zoo [2]
  AND: he **was go** in the car [3]

(12) *Error Type 12: Inappropriate use of the auxiliary in past tense context*
    AND: you **was** fighting [1]
    AND: a boy and a girl it **was** playing [2]

Verbal Tokens inflected for Past Tense

Twenty nine tokens were inflected for the past tense in AND's data, 20 (69%) of which are irregular verbs and nine (31%) are regular. The lexical variance of tokens is 15, comprised of 8 irregular and 7 regular verbs (Table 5.5). The verb with the highest frequency is *forget* (11 tokens), while *run* and *break* have 2 tokens each.

Table 5.5							
Number of tokens inflected for past tense and lexical variance in each recording cycle							
Past tense Tokens	AND1 1	AND2 7	AND3 5	AND4 8	AND5 4	AND6 4	Total 29
Lexical Items	1	7	4	2	4	3	15*

*Some lexical items occur in more than one recording cycle

Table 5.6 illustrates the breakdown of errors as they occur with both regular and irregular verbs. Only two errors occur with verbs that are marked for the simple past tense, both errors fall into the category of inappropriate use of an auxiliary with an irregular verb that has already been inflected for past tense (13). However, this low level of errors should be considered together with the low number of past tense tokens and low level of lexical variance. As discussed previously, AND's main strategy for past tense formation throughout the study is *was* followed by the stem of the verb or *was* followed by the progressive form. Over-regularisations do not occur in AND's data.

Table 5.6: Number of past tense tokens, with number of errors for regular and irregular verbs						
Figure in brackets shows the number of number of errors occurring in that category						
	AND1	AND2	AND3	AND4	AND5	AND6
No. of regular past tense tokens	0	3 (0)	2 (0)	0	2 (0)	1 (0)
No. of irregular past tense tokens	1 (0)	4 (1)	3 (1)	8 (0)	2 (0)	3 (0)
Total	1 (0)	7 (1)	5 (1)	8 (0)	4 (0)	4 (0)

(13) *Error Type: Inappropriate use of auxiliary with inflected verb*
    AND: the girl it **was sat** a tree with no leaves [2]

AND: he **was ran** away [3]

There is evidence in the third cycle of the simultaneous use of *was go* and *went* and *ran*, *was ran* and *was run* (14).

(14) AND: he **was go** away a lot of times [3]
   AND: I **went** to Easter+egg [3]
   AND: it **was go** to the wolf [3]

   AND: he **was ran** away [3]
   AND: because he **was run** and then he was trying to eat him [3]
   AND: and then **ran** away [3]

5.4.3 ELV

The occurrence of past tense in obligatory contexts

There are 546 obligatory cases that require past tense marking in ELV's data. As illustrated in Table 5.7, a total of 148 errors occur, 50 (34%) of which belong to the error category where the root form is used in an obligatory past context (15). Other errors include the double marking in past-tense negative formation, which occurs twice (16) and the inappropriate use of an auxiliary verb, which accounts for 10 errors (7%), a sample of which can be seen in (17). The largest error category is that of morphological errors, accounting for 60 (41%) of all errors made. These will be discussed in greater detail in the following section.

(15) *Error Type 4: Use of the root form of verb in an obligatory past context*
   when my mum buyed me another one, I **give** that one to him [1]
   He **go** so fast to get some [1] [referring to the time they ran out of petrol]
   But once I **go** to my friend's house [1]
   Because he **needs** yesterday a pink one [2]
   When yesterday he **collect** me from school <he> [/] <he go> [>] that green shop [2]
   Yester(day) at night time I was being downstairs, my mam was sleeping and I quietly **go** downstairs [2]
   I runned and I **run** [2]
   I didn't grow them I **buy** them in the shop [2]

(16) *Error Type 8: Double marking in past tense negative formation*
   You didn't even got one [6]
   He didn't cared where he hurt [4]

(17) *Error Type 11: Inappropriate use of auxiliary*
   The dog didn't able to catch him [2]
   The other men was going to collect us [3]
   Did you able to run there? [6]

It's fell down [6]
No, my dad weren't in school [7]
Some of the cars was driving there [8]

Table 5.7
Number of obligatory past tense contexts and number of errors in each recording cycle

Obligatory Contexts	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Tot.
	76	109	70	142	32	52	30	35	**546**
No. of errors	17	32	23	39	7	13	5	12	**148**
% correct	78%	70%	67%	73%	78%	75%	83%	66%	

Verbal Tokens inflected for Past Tense

There are 235 tokens inflected for the past tense in the corpus of ELV, 173 (74%) of which are irregular verbs and 62 (26%) of which are regular verbs. The lexical variance is 62, with 28 irregular verbs and 34 regular verbs (Table 5.8). *Go* is the verb with the highest frequency (28 tokens), followed by *say* and *fall* (15 tokens) and *come* (11 tokens). The verbs which occur with the highest frequency in ELV's data are all irregular verbs.

Table 5.8
Number of tokens inflected for past tense and lexical variance in each recording cycle

Past Tense Tokens	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Total
	25	56	43	56	13	21	8	13	**235**
Lexical Items	13	30	19	21	10	16	7	8	**62***

*Some lexical items occur in more than one recording cycle

Table 5.9 shows the breakdown of errors for regular and irregular verbs. A total of 73% of all tokens are correctly inflected for past tense. There are no errors occurring with the inflection of regular verbs, resulting in an accuracy of 100%. However, only 111 (64%) of all irregular verbs are correctly inflected to mark past tense. Analysing the 62 errors that occur with the inflection of irregular verbs reveals that errors fall into three categories; morphological errors account for 60 of the errors, with the [-ed] morpheme added to the root of the verb in 54 cases and added to the past tense of the verb on six occasions, with one token of *gaved* and 5 tokens of *felled*. Over-regularisation occurs most frequently with the verb *go* (9 tokens), *run* (7 tokens), *buy* (6 tokens) and *break, fell, fly* and *give* (4 tokens). Other errors which occur with the inflection of irregular vebrs into past tense include the inappropriate suppliance of an

auxiliary with the simple past, which accounts for one error (*it's fell*) and the use of the past tense as a superlative occurs once (*wonnest*).

Table 5.9 Number of past tense tokens, with number of errors for regular and irregular verbs Figure in brackets shows the number of number of errors occurring in that category								
	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8
No. of regular past tense tokens	6 (0)	24 (0)	4 (0)	14 (0)	3 (0)	6 (0)	2 (0)	3 (0)
No. of irregular past tense tokens	19(12)	32(12)	39(11)	42 (17)	10 (3)	15 (6)	6 (0)	10 (1)
Total	25(12)	56(12)	43(11)	56 (17)	13 (3)	21 (6)	8 (0)	13 (1)

In cycle one, ELV simultaneously uses *fell / felled*, *went / goed* and *telled / told* (18). There is evidence in cycle two of the simultaneous use of *buy / bought*, *fell / felled* and *won / wonnest* (19). In the third cycle, *bring / brought*, *came / comed*, *flew / flied* and *went /goed* are all used simultaneously (20) and *bought / buyed*, *drived / drove*, *fell / felled* and *goed / went* are all used in cycle four (21).

(19) ELV: then it **fell** [1]
     ELV: he **felled** off the bed [1]

     ELV: my dad **went** somewhere……..he **goed** so fast [1]
     ELV: I **went** to [/] to see St_Patrick [1]
     ELV: he **goed**, my dad **goed** fourteen [1]

     ELV: my dad **told** me not to press it [1]
     ELV: somebody **telled** him to go [1]

(19) ELV: my dad <brought> [//] **buyed** it [2]
     ELV: we **buyed** in library [2]
     ELV: my mom **bought** them [2]

     ELV: he **felled** and then I runned and I run [2]
     ELV: he **fell** and then I run and I run [2]

     ELV: I **won** the two times [2]
     ELV: I **wonnest** [2]

(20) ELV: he still **bringed** me [3]
     ELV: my mam still **brought** me [3]

     ELV: Tony first **comed** in the school……after us somebody else **came** [3]

     ELV: I **flied** away [3]
     ELV: he **flew** here [3]

ELV: I **goed** on a horse [3]
ELV: I **went** the other way [3]

(21) ELV: I **buyed** my rabbit [4]
ELV: we **bought** him a big house [4]
ELV: I **buyed** it with my mam [4]

ELV: he **drived** on my mam's one [4]
ELV: my mam **drived** [4]
ELV: he **drove** and he saw a police….then he **drove** very fast [4]

ELV: first I **went** fishing……then I **goed** to the lake [4]

ELV: he **felled**, he just **felled** [4]
ELV: I **fell** [4]

5.4.4 AME

The occurrence of past tense in obligatory contexts

A total of 298 obligatory cases require past tense marking in AME's corpus. Table 5.10 illustrates the number of obligatory cases and errors as they occur in AME's data. Thirteen cases are not marked for past tense, a sample of which is in (22). The highest error category after the zero-marking in an obligatory context is the use of the past tense in an obligatory present context, of which there are 9 errors. A sample of these errors is illustrated in (23). Other errors include 2 cases where there is double marking in the formation of the past tense negative (24) and there are 9 errors involving the inappropriate use of an auxiliary (25). There are 7 morphological errors. These morphological errors will be discussed in more detail in the following section.

Table 5.10 Number of obligatory past tense contexts and number of errors in each recording cycle									
Obligatory Contexts	AME1 32	AME2 27	AME3 23	AME4 74	AME5 35	AME6 26	AME7 47	AME8 34	Tot. 298
No. of errors	9	3	3	13	4	3	3	5	43
% correct	72%	89%	87%	82%	89%	88%	94%	85%	

(22) *Error Type 4: use of root form in an obligatory past tense context*
I said to him eh can I ride a bike, he said no, then I **sit** down [1]
Then the big great giant dinosaur **comes** in and he brought them some presents [2]

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My cousin **come** to my house [4] [when asked what he did during the holidays]
Play **game** [4][when asked what he did with his cousin]
They **make** butter and then they **cook** it then she heared and sound [4]

(23) *Error Type 5: use of past tense in an obligatory present tense context*
My first brother **was** Eamonn [1]
My second brother **was** Salah [1]
I **forgot** but the only thing I [/] I didn't forget <I eh> [//] it was a plastic hat [3]
I want the sweets now, might we **ate** them [3]
I **forgot** [4] [when asked what a man is doing]
I **forgot** [4] [when asked what he learnt in school the previous day]

(24) *Error Type 8: Double marking in past tense negative formation*
I **didn't saw** the camel in the water [1]
I **don't** think she **didn't** [7]

(25) *Error Type 11: inappropriate use of the auxiliary*
People **was** coming and eh people **was** killing him but he thought eh that Ed and
Ed eh **was** playing around but they **wouldn't,** they were fighting [1]
Two of the little babies **was** in the doll's house [2]
Two girls and one baby called Tommy **was** on the table [2]
He **was put** him on the water [4]

Verbal Tokens inflected for Past Tense

A total of 102 verbs are inflected for past tense in AME's corpus, 26 (25%) of which
are regular verbs and 76 (75%) are irregular verbs. There is a lexical variance of 38,
22 of which were irregular verbs and 16 were regular verbs (Table 5.11). The verb
with the highest frequency was *see* (13 tokens), followed by *say* (10 tokens), *forget* (9
tokens) and *think* (7 tokens). *Give, tell* and *wake* had five tokens each. All of these
verbs which occur with high-frequency in AME's corpus are irregular.

Table 5.11									
Number of tokens inflected for past tense and lexical variance in each recording cycle									
Past Tense Tokens	AME1 8	AME2 8	AME3 8	AME4 23	AME5 10	AME6 13	AME7 17	AME8 15	Tot. 102
Lexical Items	5	8	4	15	9	10	8	10	**38***

*Some lexical items occur in more than one recording

Table 5.12 illustrates the number of errors that occur with both regular and irregular
verbs. Out of the total number of verbs marked for past tense, 95 verbs (93%) are
correctly inflected. No errors occur with the inflection of regular verbs for past tense,
resulting in an accuracy rate of 100%. Ninety one per cent of irregular verbs are
correctly inflected to mark past tense. Errors in the remaining 9% all fall into the
single error category of over-regularisation, with [-ed] added to the irregular past form

of the verb in five cases, with *gaved* and *sawed* occurring twice and *woked* occurring once (26), and with [-ed] added to the stem of an irregular verb in two cases (*heared* and *knowed*), as illustrated in (27). There is evidence in cycle four of the simultaneous use of both *gave* and *gaved* in AME's utterances (28) and in cycle six and eight *saw* and *sawed* are used simultaneously (29).

Table 5.12 Number of past tense tokens, with number of errors for regular and irregular verbs
Figure in brackets shows the number of number of errors occurring in that category

	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8
No. of regular past tense tokens	2 (0)	2 (0)	2 (0)	8 (0)	3 (0)	1 (0)	6 (0)	2 (0)
No. of irregular past tense tokens	6 (0)	6 (0)	6 (0)	15 (3)	7 (1)	12 (2)	11 (0)	13 (1)
Total	8 (0)	8 (0)	8 (0)	23 (3)	10 (1)	13 (2)	17 (0)	15 (1)

(26) *Error Type 1: [-ed] added to past irregular verb*
 AME: he **gaved** it to the ehm old man [4]
 AME: he **woked** up [4]
 AME: Miss-Lynch **gaved** us this [5]
 AME: I **sawed** something outside [6]
 AME: he **sawed** a murder [8]

(27) *Error Type 2: [-ed] added to irregular stem*
 AME: then she **heared** a sound [4]
 AME: I just **knowed** how to write a@l [6]

(28) AME: he **gaved** it to the ehm old man [4]
 AME: he just **gave** me one [4]

(29) AME: Imagine we **saw** the monkey clown flying to outer space [6]
 AME: I **saw** it with my lovely eye [6]
 AME: I **sawed** something outside [6]

 AME: he **sawed** a murder [8]
 AME: my dad **saw** me [8]
 AME: you never even **saw** it [8]

5.4.5 SAR

The occurrence of past tense in obligatory contexts

There are 281 obligatory past tense contexts in SAR's corpus. A total of 40 errors occur. Table 5.13 illustrates the breakdown of obligatory contexts and errors as they occur in each cycle.

Table 5.13 Number of obligatory past tense contexts and number of errors in each recording cycle										
Obligatory Contexts	SAR1 27	SAR2 11	SAR3 29	SAR4 85	SAR5 18	SAR6 31	SAR7 24	SAR8 21	SAR9 35	Tot. 281
No. of errors	5	1	3	5	3	10	2	2	9	40
% correct	81%	91%	90%	94%	83%	68%	92%	90%	74%	

Seven errors (18%) result from the use of the root form in an obligatory past context (30). Six errors (15%) result from the use of the past tense in an obligatory present context (31). Seven errors (18%) result from double marking of the past tense (32) and seven errors (18%) are from incorrect past tense formation strategies (33). Other errors, which occur in small numbers, include the use of *done* instead of *did* (*you done a cheat*) and the use of the past tense in an obligatory progressive context (*I saw him and keep on mixed him up*). Morphological errors, of which there are nine (23%), will be discussed in the following section.

(30) *Error Type 4: use of root form in an obligatory past context*
    SAR: the people that **bring** me clothses I needed to wear them [1]
    SAR: finally Jack just **climb** up [4]
    SAR: <I only **give** him > [>] a hint, I only gave it to him a hint [5]
    SAR: I [/] I **bite** my peanut there is a thing [6]
    SAR: I **open** it there's a paper inside [6]
    SAR: I **bite** one and I ate a other bit [6]
    SAR: I saw him and **keep** on mixed him up [9]

(31) *Error Type 5: use of past tense in an obligatory present context*
    SAR: do you **gave** up? [8]
    SAR: first you need to **showed** us the picture [7]
    SAR: don't **threw** it like that [6]
    SAR: there's a house **fired** [*describing a picture of a house on fire*] [5]
    SAR: you know what she **kepts** on doing to me? [3]
    SAR: she **kepts** on dancing [3]

(32) *Error Type 9: double marking in past tense formation*
    SAR: where **did** you **got** this? [5]
    SAR: **did** somebody **gave** you an interpretation [: invitation] [6]
    SAR: <**did** he> [<] **told** you? [6]
    SAR: **did** he **told** you that? [6]
    SAR: tooth fairies **didn't** even **came** to me [6]
    SAR: I **didn't got** the cow [6]
    SAR: **did** you **saw** Manish's haircut for today? [9]

(33) *Error Type 12: inappropriate past tense formation strategies*
    SAR: she **was make** ehm the Gingerbread-boy [4]

SAR: I **got lose**.....I was helping him but he **got lose**......first I **got lose**.....then I **got win**....I **got zero time lose, I got once time win** [9]

Verbal Tokens inflected for Past Tense

In SAR's data, there are 137 tokens which have been inflected for the simple past tense, of which 103 (75%) are irregular verbs and 34 (25%) are regular. There is a lexical variance of 45, comprised of 22 regular verbs and 23 irregular verbs. Table 5.14 illustrates the number of tokens inflected for past tense and the lexical variance in each recording cycle. *Go* is the verb which occurs with the highest frequency (14 tokens), followed by *give*, *say* and *see* (11 tokens each) and *tell* (9 tokens).

Table 5.14
Number of tokens inflected for past tense and lexical variance in each recording cycle

Past tense Tokens	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9	Total
Past tense Tokens	14	9	16	36	5	17	12	12	16	**137**
Lexical Items	10	8	6	20	4	10	9	8	11	**45***

* Some lexical items occur in more than one recording cycle

Table 5.15 illustrates the number of errors as they occur with both regular and irregular verbs. A total of 93% of verbs are correctly inflected, this can be further broken down as 97% of regular verbs and 92% of irregular verbs, resulting in a total of 9 morphological errors. There is only one error in the inflection of regular verbs, when the verb *mix* is inflected as *mixted*. Eight errors occur in the formation of irregular verbs, all of which are over-regularistations (34). *Sawed* and *throwed* occur twice, and *builded, hearded, buyed* and *thoughted* occur once.

(34) SAR: he **buyed** one [6]
　　SAR: he **hearded** that jack got some monies [4]
　　SAR: he **thoughted** that he should cut the beanstalk [4]
　　SAR: he **sawed** ehm castle [4]
　　SAR: he **throwed** that [2]
　　SAR: my mum **sawed** a mice and she **throwed** it outside [1]
　　SAR: my dad **builded** bunk bed [1]

Table 5.15: Number of past tense tokens, with number of errors for regular and irregular verbs

Figure in brackets shows the number of number of errors occurring in that category

	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9
No. of regular past tense tokens	5 (0)	2 (0)	1 (0)	14 (0)	1 (0)	5 (0)	2 (0)	3 (1)	1 (0)
No. of irregular past tense tokens	9 (3)	7 (1)	15 (0)	22 (3)	4(0)	12 (1)	10 (0)	9 (0)	15 (0)
Total	14 (3)	9 (1)	16 (0)	36 (3)	5 (0)	17 (1)	12 (0)	12 (1)	16 (0)

However, there is evidence of the simultaneous use of *saw / sawed* in cycle one (35) and *thought / thoughted, saw /sawed* and *heard / hearded* in cycle four (36). *Mixed / mixted* is used simultaneously in cycle eight (37).

(35) SAR: my mum **sawed** a mice [1]
    SAR: I only **saw** the T_V [1]

(36) SAR: he **sawed** ehm castle [4]
    SAR: he **saw** the castle [4]

    SAR: his mother **thought** where is Jack [4]
    SAR: he **thoughted** that he should cut the beanstalk [4]

    SAR: she **heard** a sound [4]
    SAR: he **hearded** that Jack got some monies [4]

(37) SAR: I **mixted** it, here I mixted [/] **mixed** his clock [8]

5.5 Conclusion

This chapter looked at the use and emergence of past tense marking as it occurred in the corpus of the five subjects in the study. With acquisition criteria established at 80% of correct usage across three consecutive cycles, with a minimum of five tokens in each sample, it can be concluded that HIC, ELV and AND have yet to achieve a sufficient level of mastery for past tense marking. AME has consistently achieved a score greater then 82% from cycle two, and therefore reaches the acquisition point in cycle 4. According to the criteria, SAR reaches the necessary acquisition point in cycle three, however, it should be noted that her score drops below the necessary 80% in cycle six and nine, dropping to 68% and 74% respectively. In cycle six this drop can be attributed to the double marking of past tense utterances, where both the auxiliary and main verb are marked. In cycle nine, the drop can be attributed to the

inappropriate use of the auxiliary with the main verb. As both of these errors only occur on one other occasion throughout the whole study, it would appear that it is a temporary readjustment in her learning curve. This drop below 80% could also be what is referred to by Maratsos (2000) as the 'wobble' pattern, speaking of Adam and Sarah's data in Marcus et al.'s (1992) study, when their rates still wobbled below and above the 90% mark for several months.

Although there was considerable variation in acquisition levels between subjects, as a group they demonstrated lexical productivity, selectivity and contrastivity of use, as well as morphological productivity.

An analysis of the errors as they occur in the data of each subject reflects the U-shaped developmental curve. For subjects AND and HIC, who are at an early stage in the acquisition of past tense marking, with an average level of mastery at 60% and 53% respectively, the error category occurring with the highest frequency is that of the present tense being used in an obligatory past context while over-regularisations account for only 13% of errors in the case of HIC and do not occur at all in the data of AND. For the two subjects whose average score is 74% and 84%, the main error category is morphological, with over-regularisations accounting for 23% of SAR's errors and 41% of ELV's errors. AME, who has the highest acquisition score, produces a relatively low level of over-regularised verbs throughout his data. As predicted by the developmental curve, over-regularisations tend not to occur at the early or final stages during the acquisition process.

Without exception, the verbs inflected for past tense that occur with the greatest frequency are all irregular verbs. Examination of the top four verbs occurring with the greatest frequency for each of the five subjects reveals only irregular verbs. (For one subject, AND, who had a low lexical variance, it was only possible to look at the top three most frequently occurring verbs). Verbs occurring at high frequency do not vary significantly across subjects, with *say* occurring with high frequency for four subjects, and *see* and *go* also common across the same four subjects. AND is the only subject whose high frequency verbs do not coincide with those produced by the other subjects.

It is clear from this and the previous chapter, that the past tense and plural morpheme share similar error formations and patterns of acquisition. It is therefore appropriate to look at the findings of these two chapters as a whole, and see what implications these findings have on current language learning theory, with a particular focus on the two main competing models of lexical representation, namely the connectionist neural networks theory and the dual-mechanism approach to language learning. In addition to looking at theoretical implications, the next chapter will, based on the findings of these last two chapters, investigate the psycholinguistic differences in the acquisition of plural and past tense morphology.

Chapter 6: Discussion on Findings of English Past Tense and Plural Morphology

6.1 Introduction

The previous two chapters presented this study's findings on the acquisition trajectory of the plural [-s] morpheme and the past tense [-ed] morpheme. There are some fundamental differences between how these two morphemes operate[5]. Firstly, both morphemes are attached to different word classes, with the plural [-s] attached to nouns and the past tense [-ed] attached to verbs. The morphological features also differ on a semantic, syntactic and complexity level. In addition, verbs require auxiliaries in certain contexts, the presence of which calls for radical morphological changes to the main verb. However, while these differences do exist, there are a number of features shared by both morphemes. In addition to the similarities in the inflectional routes of regular nouns and verbs, there are a number of common characteristics which irregular nouns and verbs share, such as phonologically conditioned suffixation, irregular alternatives and zero marking. Based on these similarities, and following other linguists who have done likewise (Clahsen, Lück and Hahne, 2007; Maslen et al., 2004; Marchman, Plunkett and Goodman, 1997; Marcus, 1996; Plunkett and Juola, 1999), this chapter will discuss in unison the findings of the previous two chapters. The implications these findings have on L2 acquisition theory will be explored, and discussion will focus on whether findings from the plural [-s] morpheme and the past tense [-ed] morpheme provide evidence to support the symbolic, rule-based approach as proposed by Pinker (1984) or the connectionist neural networks model approach as proposed by Rumelhart and McClelland (1986). In addition, the psycholinguistic differences in the acquisition of plural and past tense morphology will be discussed in an attempt to establish whether noun inflections are acquired earlier than verbal inflections and whether there is evidence from the data that the over-regularisation of noun-plurals occurs earlier and more frequent than the over-regularisation of past tense forms, as discussed in Marcus (1995) and Marchman et al., (1997).

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[5] I am grateful to Dr. Sean Devitt for pointing out these differences.

6.2 Theoretical Background

The developmental pattern for the acquisition of past tense and plural morphology is well understood; children typically start by producing a small number of both regular and irregular forms, free from errors, before going on to produce over-regularised forms for a small but significant number of verbs and nouns, resulting in the onset of errors. They then appear to re-learn the correct form, creating a classic U-shaped sequence of development (Marcus et al., 1992; Marcus, 1995; Plunkett and Juola, 1999). Over-regularisations result when the regular [-ed] morpheme is affixed to an irregular verb or the plural [-s] suffix is applied to an irregular noun. Interpretations of the acquisition of this inflectional pattern has been much debated in the literature, with evidence largely falling into two main competing models of lexical representation, namely the single-system connectionist field, which is based on networks of connections between nodes (Rumelhart and McClelland, 1986; McClelland and Patterson, 2002; Plunkett and Marchman, 1991, 1993; Maslen et al, 2004) or the dual-mechanism approach, which was initially proposed by Pinker (1984) and further developed by other linguists (Marcus et al., 1992; Pinker and Prince, 1988; Clahsen, 1999), and is a rule-based model.

Proponents of the dual-mechanism model (referred to by Marcus (2000) as the rule-and memory model and by Pinker and Ullman (2002) as the words-and-rules (WR) theory) argue that regular and irregular past-tense and plural inflections are learned through two different processes, with the mode of acquisition for regular forms encompassing symbolic rules and the mode of acquisition for irregular forms evoking lexical memory. Regular inflections are paradigmatic, produced by the generative grammatical rule of suffixation (+ [–ed] for past tense inflections and [+ –s] for plural inflections). For the English plural, the symbolic rule takes as its argument any item identified as a noun and produces its plural form, noun + [s] , and depending on the final phoneme, [s] will be realised as /s/, /z/ or /ez/ allomorphs by subsequent processes. This becomes the default system. Similarly, for the past-tense inflection, the symbolic rule takes as its argument any verb stem and produces its past tense form, verb stem + [ed], which will be subsequently realised as /ed/, /et/ or /id/ allomorphs. Pinker and Ullman (2002) point out that the WR theory does not literally posit the discrete rule 'to form the past tense, add [-ed] to the verb'. It simply posits the past

tense morpheme [-ed], the verbal variant V, and a general operation for merging these constituents, so that the [-ed] morpheme is concatenated with the symbol V.

The remaining inflectional processes, such as the vowel change required in inflecting *run* to *ran* or *tooth* to *teeth*, the suppletion of the base form in *go-went* or the complete transformation in the inflection of *think-thought* or *person-people*, are products of lexical mechanism, as a result of being stored in an associative memory, which is sensitive to a word's resemblance to other stored forms (Marcus, 2000). It should be noted however that this does not mean that regular inflections are never stored in the lexicon. Regular inflected forms occasionally can be stored in the lexicon, but they do not have to be (Pinker and Ullman, 2002; Murphy, 2000).

Once learners have identified the regular inflection, they apply it as a default in all circumstances whenever it is not blocked by the successful retrieval of the memorised form of the irregular pattern (Dąbrowska, 2004), so that *thought*, for example, would pre-empt *thinked* and similarly, *teeth* would pre-empt *tooths*. This process has also been referred to as the blocking-and-retrieval failure account (Marcus, et al. 1992). Advocates of this theory predict that the acquisition of these regular morphemes is sudden and applies uniformly across all verb and noun classes, regardless of phonological or semantic properties and frequency of occurrence. However, it should be pointed out that a dense corpus study conducted by Maslen et al. (2004) casts doubt on the blocking model and its ability to account for OR errors.

The dual-mechanism approach has been extended to the declarative / procedural (DP) model of lexicon and grammar by Ullman (2001). This model posits that the lexicon / grammar distinction in language is tied to two brain memory systems. Irregular forms of noun-plurals and past tense are stored in the lexical portion of declarative memory and long-term retention of these irregular forms depends on the neocortex region of the brain, in particular the temporo-parietal cortex region. The acquisition and use of grammatical rules that underlie the regular plural and past tense forms, on the other hand, is done by grammatical processing which is dependent on the procedural system, which is subserved by the frontal cortex and the basal ganglia circuits of the brain.

The dual-mechanism approach has been challenged by proponents of the single-system connectionist approach, which was initially put forward by Rumelhart and McClelland (1986). Since then, a number of different connectionist models have been proposed to address the limitations of the original model (Daugherty and Seidenberg, 1994; Plunkett and Juola, 1999; Plunkett and Marchman, 1991, 1993; McClelland and Patterson, 2002). The connectionist approach provides an alternative view of acquisition and challenges the need for rules, arguing that the acquisition of the past tense and plural inflection is a gradual process. It posits that it is sensitive to both phonological and semantic properties, in addition to being sensitive to type and token frequencies of input items. This approach also claims that the inflections are produced from a single-mechanism process, using a hypothesis generator, whereby the acquisition of both regular and irregular stems is a result of one general associative memory network, which is totally reliant on lexical memory. Within this framework, the language learner is constantly comparing words in the input to the tokens that their hypothesis generator would have produced. The learner then realises that the hypothesis generator is wrong and must be modified to accommodate the correct form. The single mechanism approach uses an incremental training procedure in terms of quantitative changes in type and token input that makes a transition from rote learning of past tense forms to a systematic treatment of past tense formation and applies the regularities constructed to new forms (Szagun, 2001, p. 110). Reorganisation of the system depends on frequency of occurrence in the input and a critical mass of vocabulary.

As discussed in chapters 4 and 5, language learners acquiring either the past tense or plural morpheme go through four developmental stages, starting at the pre-rule phase, and progressing on to the stage of mastery. Before attaining mastery, learners go through the transitional pre-rule stage and the transitional post-rule stage, when there is a dramatic increase in the number of OR errors. Theorists adopting a dual-mechanism approach account for this stage by explaining that there are two routes available to language learners when producing verbal or noun inflections during this transitional post-rule stage. Language learners can either reproduce an irregular form of the verb that has been memorised in the lexicon memory or they can apply a paradigmatic rule to any regular or irregular noun or verb form that has not been stored in the lexicon memory. Connectionists, on the other hand, account for this

stage, not by the learners' use of productive rules, but by the learners modifying the strengths of the interconnections between input and output with a single associative root.

6.3 Evidence of U-shaped developmental profile

Empirical studies show that children first use regular and irregular forms correctly, then move into a period of correct and incorrect inflection, before they correctly inflect regular and irregular morphemes again (Marcus, Ullman, Pinker, Hollander, Rosen and Xu, 1992). There is much evidence in the data from this study to support this U-shaped pattern of development. AME initially produces the correct form of the irregular verb *hear* in cycle one and two, before then incorrectly inflecting it to *heared* in cycle four. Similarly, *give* is correctly inflected in cycle two, is incorrectly inflected as *gaved* in cycle four and five and correctly inflected again in cycle six and eight. AME also correctly leaves the mass noun *clothes* unmarked for plural in cycle two, but produces *clotheses* in cycle four and six. ELV uses *brought* correctly in cycle two, and incorrectly inflects it as *bringed* in cycle three. Evidence from AND is found in the correct pluralisation of the irregular noun *foot*, which occurs on five occasions in the first three cycles. *Feets* emerges once in cycle four and again in cycle six. Analysing the pattern of OR errors as they occur with nouns and verbs in the acquisition of plural and past tense morphology in this study reveals a profile which reflects the classical U-shaped developmental curve.

6.4 Theoretical implications from this study

Findings on past tense and plural morphology which were observed in this study have theoretical implications for the acquisition of these morphemes, and in particular on the morphological rules within a rule-based or connectionist framework. In order to see if findings from this study provides evidence to support either the dual-mechanism or connectionist approach, the following tenets of both approaches will be addressed, namely whether 1) irregular nouns are over-regularised at a higher rate than irregular verbs, 2) whether there is evidence that subjects can readily inflect frequently and infrequently occurring nouns and verbs, 3) whether there is evidence that the acquisition of the past-tense or plural form is sudden and 4) whether there is evidence of a qualitative change in plural and past tense use, in which limited use is replaced by frequent use and over-regularisation.

6.4.1 Over-regularisation Rates

Marcus (1995), Marchman, Plunkett and Goodman (1997) and Plunkett and Juola (1999) claim that connectionist models should over-regularise irregular nouns at a higher rate than irregular verbs because of the overwhelming predominance of regular to irregular types in the plural and past tense systems. The dual-mechanism approach, on the other hand, is not affected by the relative size of the regular class. Pinker and Ullman (2002) point out that the onset and rate of OR errors in children do not correlate with changes in the number or proportion of regular verbs used by parents when addressing children. Following Plunkett and Juola (1999), Marcus et al. (1992), Plunkett and Marchman (1993) and Maslen et al. (2004), over-regularisation rates for this study were calculated based on the following formula:

$$100 \left(\frac{over-regularised \cdot tokens}{\left(over-regularised \cdot tokens + correct \cdot tokens \right)} \right)$$

Comparing the rates at which verbs and nouns were over-regularised by the subjects in this study reveals that one of the five subjects (SAR) over-regularises nouns at a higher rate than verbs, as illustrated in Table 6.1. HIC, ELV and AME, on the other hand, over-regularise verbs at a higher rate than nouns. AND's acquisition of past tense morphology is still at the pre-rule stage, and therefore free from any OR errors. That error rates are higher in the inflection of verbs when compared to noun plurals for four of the five subjects, can be ascribed to the fact that irregular verbs differ in their level of complexity when compared with plural inflections. These over-regularisation rates do not reflect the predictions of the connectionists.

Furthermore, Marchman et al. (1997) report an average over-regularisation rate of 16% for nouns and 10% for verbs, while Marcus (1996) claims that children over-regularise in only about 4% of their opportunities. Marcus (2000) reports comparable rates of over-regularisation of 7.5% for past tense morphology and 8.3% for plural morphology nouns. Error rates for past tense inflection in the current study range from 0-13.1% (the rate of 0 is due to the subject being at a pre-rule stage of acquisition). Error rates from the plural inflections in this study, ranging from 1.89% to 13%,

reflect more the findings of Szagun (2001), when she found that error rates for German noun plurals ranged from 3% to 16%. However, as pointed out by Marcus et al., (1992) and Plunkett and Marchman (1993), the German plural marking system is particularly complex, leading to a high error rate.

Table 6.1: Comparison of over-regularisation rates for nouns and verbs					
	HIC	**AND**	**ELV**	**AME**	**SAR**
OR rate for verbs	9.75	0	13.1	2.67	3.6
OR rate for nouns	2.31	1.89	9.45	2.61	13

Incidentally, evidence from this study corroborates that of other studies (Marcus et al., 1992; Slobin, 1971b; Kuczaj, 1977), with no case of the verb *forget* being over-regularised and produced as *forgetted* or *forgotted*.

6.4.2 Token Frequency

While both the dual-mechanism and single route model can both provide explanations for the occurrence of over-regularisations, the single-route predicts that error rate will be related to frequency of tokens, with Plunkett and Juola (1999, p. 477) reporting that one of the most important findings from their study was that the most frequent irregular words were immune to over-regularisation. Maratsos (2000), Maslen et al. (2004) and Arnon and Clarke (2008) all support the single-mechanism report by showing that over-regularisation errors are affected by token frequency and modality type. The dual-mechanism approach, on the other hand, predicts that inflections should be independent of input frequency, as once a general paradigmatic rule is formed, inflections should generate consistent use of plural and past tense regular suffixes in obligatory contexts, in addition to generating over-regularisations (Oetting and Rice, 1993). Whether or not the noun or verb occurs frequently in the input should not have an effect on either plural or past-tense formation, once a paradigmatic rule is established. Marcus (2000) states that comparisons of acquisition across time, lexical items, inflectional systems and languages suggest strongly that regular inflection is independent of frequency and that the onset of OR errors seems to be tied more to the acquisition of a paradigmatic rule rather than a sudden change in the number of regular words in their input. Maslen et al. (2004) find that their subject, Brian, over-regularises irregular past tenses and plurals despite considerable volumes of correct forms in the input and in his own utterances. As the Connectionist approach

is sensitive to type and token frequencies of input items, in order for data from this study to provide support for this approach, frequently occurring nouns and verbs should be more correctly inflected than verbs and nouns that do not occur frequently in the input. However there is no evidence of this in the corpus, posing difficulties for the single uniform network models of inflection.

While the number of over-regularised verbs is relatively high (9.75), due to HIC's point of acquisition being at an early stage, out of the nineteen verbs that are regularised, they are, for the most part, single instances. There are only 3 verbs (*bring*, *go* and *throw*) that are over-regularised on more than one occasion. *Bring* is over-regularised on four occasions, however, two of these are in negative contexts. *Go* is over-regularised on three occasions, but one token occurs with the auxiliary *am*. While evidence might lean towards the dual-mechanism approach, as *go*, the verb which is most frequently over-regularised, is also the fourth most frequently occurring verb in HIC's data, however, overall, with only a maximum of three or four instances of OR verbs, the data here is too small for any conclusions to be drawn. The number of over-regularised noun plurals is low (2.31), with an OR error occurring with *sheep* on two occasions and *money* and *paint* are over-regularised on one occasion. None of these three nouns are frequently occurring nouns in HIC's data. *Tooth*, the most frequently occurring irregular noun, is not over-regularised at all, which might suggest evidence to back the connectionist approach, however, it is more probable that the correct plural form *teeth* is a product of lexical memory, as suggested by the dual-mechanism approach. However, due to the small amount of data for verb and noun inflections, conclusions, if drawn, should be treated with caution.

There are no OR errors in the production of past tense in AND's data, as past tense formation is still at a very early stage of development. Production of the plural form is more advanced, with OR errors beginning to emerge. There are a total of four OR errors in irregular plural production, two of these errors occur with the noun *foot*, which is the irregular noun occurring with the greatest frequency in AND's corpus. Out of the irregular nouns occurring with the lowest frequency, of which there are five tokens, only one OR error is produced

In ELV's data, out of 173 tokens of irregular verbs, there are 60 OR errors, with OR errors occurring most frequently with the following verbs - *go, run, buy, break, fall, fly* and *give*- all of which occur frequently in child-directed speech. The verb which is over-regularised most frequently is *go*. This is also the most frequently occurring verb inflected for the past tense in all of ELV's data, with 28 tokens, providing little evidence to support the connectionist approach. A similar case is found with noun inflections, where the noun which is over-regularised most frequently, *money*, is also the noun which occurs most frequently in ELV's data. So for both plural noun and past tense verbal inflections, the noun and verb that occur with the most number of OR errors are also the verb and noun which are the most frequently occurring items in the whole of Elvin's corpus, providing support for the dual-mechanism approach.

Analysis of AME's corpus reveals that the verbs *see* and *give* are the verbs occurring with the greatest number of OR errors, with two counts each. However, *see* is the most frequently occurring verb in AME's data, while *give* also occurs with relatively high frequency. Examining the eight irregular verbs which occur with the lowest frequency, only one verb, *know*, is over-regularised, appearing as *knowed*. A similar picture emerges with the plural formation of irregular nouns. The noun which is most frequently over-regularised is *clothes*, appearing as *clotheses* on two occasions. This noun, together with *tooth*, is the second most frequently occurring noun in AME's corpus, while out of the eight nouns occurring with the lowest frequency, only two are produced with an OR error.

In SAR's data, there are two verbs that are over-regularised on two occasions, one, the verb *see*, is one of the most frequently occurring verbs in SAR's corpus[6]. The other verb, *throw*, occurs with relatively low frequency. The nouns that appear with the most OR errors are *money* and *clothes*, with six and four tokens respectively. These are also among the most frequently occurring nouns in the corpus. Similarly, plural forms of irregular nouns such as *mouse, child* and *tooth* and past tense forms of irregular verbs such as *lose, know* and *find*, which have only one token each in the corpus, are produced free from OR errors, providing further evidence to support the

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[6] The past tense form of the no-change verbs *put* and *cut*, while having the highest number of OR errors, were excluded from analysis. They will, however, be discussed later in this chapter.

dual-mechanism approach, as there is no evidence to suggest that the most frequently occurring verbs are produced with greater accuracy.

This evidence, extracted from the data of each of the five subjects, demonstrates that subjects can readily inflect frequently and infrequently occurring nouns and verbs, a notion which is inconsistent with the approach adopted by the connectionist theory of plural and past tense acquisition. The notion is, however, consistent with one of the tenets of the dual-mechanism approach, which is that there should be no evidence that frequently occurring nouns and verbs should be more correctly inflected for plural and past tense marking. This notion is consonant with the most comprehensive study carried out on German noun plurals (Szagun, 2001), which supports the notion put forward by Clahsen (1999) and Marcus (1995) that, despite its low frequency of occurrence, the [–s] plural in German, which applies to only 7% of nouns (Pinker and Ullman, 2002), is the default used by German speakers, with all other plural forms classified as irregular. Similarly, Marcus et al. (1995) report that despite the past participle [-t] being a low-frequency affix, it is considered the default rule for German past formation.

6.4.3 Evidence of Qualitative Change in Morpheme Use

While a connectionist account predicts a gradual acquisition of past tense and plural inflections (McClelland and Patterson, 2002), Pinker's dual-mechanism approach predicts a qualitative change in the number of plural and past tense morphemes produced. Data from this study provides support for the dual-mechanism approach, with evidence of a qualitative change in the use of both morphemes, with limited use being replaced by frequent use and the emergence of over-regularisations. Data from HIC provides the most compelling evidence to support this claim (Table 6.2). There is limited use of the plural morpheme in the first three cycles of HIC's data, with no OR errors produced. A leap occurs in cycle 4, which also coincides with the first OR error being produced. This cycle also sees a noticeable shift in the number of lexical items the morpheme is attached to.

Table 6.2								
Number of plural [-s] tokens, lexical items and OR errors in each recording cycle								
Plural Tokens	**HIC1**	**HIC2**	**HIC3**	**HIC4**	**HIC5**	**HIC6**	**HIC7**	**HIC8**
	5	4	7	24	19	29	50	49
Lexical Items	4	3	5	18	15	15	32	26
OR errors	0	0	0	1	1	0	1	1

Examination of past tense morphology reveals a similar picture, with past tense production changing from limited use in the first three cycles, to frequent use in cycle four, which is the same cycle which saw a leap in plural production. As with plural formation, this leap coincides with the number of lexical items that are inflected with the past tense morpheme. The main difference being that the production of OR errors is occurring at an earlier stage in past tense morphology, and prior to the shift in frequency (Table 6.3).

Table 6.3								
Number of tokens inflected for past tense and lexical variance in each recording cycle								
Past Tense Tokens	**HIC1**	**HIC2**	**HIC3**	**HIC4**	**HIC5**	**HIC6**	**HIC7**	**HIC8**
	5	4	3	14	13	21	28	45
Lexical Items	1	3	2	8	10	13	11	14
OR errors	0	1	1	2	1	5	8	2

While evidence supporting the dual-mechanism approach is most compelling in HIC's data, it can also be observed in the data of other subjects. Examining past-tense formation, a qualitative change occurs in AME's corpus in cycle four, with frequency rising from eight in the first three cycles, to 23 in cycle four. This shift also coincides with a leap in the variety of lexical items inflected with the past tense morpheme. The frequency of these errors increases after cycle four. As AME's production of plural inflections is well-established in terms of acquisition, there is no evidence of a qualitative leap.

Cycle four also marks the point in SAR's data where past tense inflection goes from limited use to frequent use, with frequency counts of 14, 9 and 16 in the first three cycles respectively rising to 36 in the fourth cycle. This cycle also marks a rise, but not the onset, of OR errors. The leap from limited to frequent use of the plural marker

occurs at a slightly earlier stage, cycle three, with 4 tokens in cycle two marked for plural, rising to 27 tokens in cycle three marked for plural. This point also marks a rise in the number of OR errors observed.

Evidence of a shift from limited to frequent use occurs in ELV's second cycle, with the number of tokens inflected with the plural morpheme rising from seven in cycle one to 31 in cycle two. The production of OR errors is only observed in cycle four, occurring slightly later than the rise in frequent use. A rise in the number of verbs inflected with the past tense morpheme also jumps in cycle two, rising from 25 tokens in cycle one to 56 inflected tokens in cycle two. OR errors are observed from cycle one.

AND is the only subject in the data where a shift from limited to frequent use and the onset of OR errors is not observed during the course of the study. However, AND's data does still reflect the predictions of the dual-mechanism approach, as before the paradigmatic rule is learned, retrieval failure should result in the verb left unmarked. These errors should be replaced by over-regularisations only after the default rule is acquired. AND's data reflects claims made by Marcus (1996, p. 83);

> As the rule-and-memory model predicts, before children reliably inflect regular verbs for past tense in contexts that require it (e.g., *I walked yesterday*), they go through an initial period in which irregular verbs are used correctly or left unmarked, but never over-regularised.

As the initial production of the plural and past tense morpheme occurred prior to the commencement of this longitudinal study, it is not possible to investigate the time span between the initial production and the qualitative shift for the five subjects, although this time-span has ranged between 1-4 months in previous longitudinal studies (Cazden, 1968; Mervis and Johnson, 1991). For the same reason, it was also not possible to investigate the time span between the first correct and incorrect use of the morphemes. In her study of German plurals, Szagun (2001) states that the average time span was 18 weeks, with 28 weeks being the maximum time span.

Data from four of the five subjects in this study provides evidence to support the dual-mechanism approach, with all four subjects displaying a qualitative change in use,

where limited use is replaced by frequent use and over-regularisation and for the subject who has not yet acquired the symbolic rule, data is still consonant with that of the dual-route theory.

6.4.4 Evidence of Blocking

The dual-mechanism approach claims that blocking will banish the over-regularised form of the verb, once the irregular past is learned. However, as is evident from data presented in the previous two chapters, some subjects produced both the regular and irregular past form of the same irregular verb during the same recording cycle. HIC produces *saw*, *seed* and *sawed* in the same cycle. *Gave* and *gaved* and *saw* and *sawed* are produced by AME. There are several examples of simultaneous use of regular and irregular forms of irregular verbs in data from SAR and ELV. This evidence would apparently contradict one of the predictions of the dual-mechanism approach, however, Marcus et al. (1992) explain this by the memory-retrieval adjunct, arguing that when a child learns a new irregular past form, their retrieval of the correct form of the verb may occasionally fail, providing an opportunity for the regular past form to intrude itself as a default, resulting in OR errors even after the correct form of the irregular verb is learned (Maratsos, 2000). Therefore, as long as such errors are rare, the phenomenon can still be explained within the dual-mechanism framework.

6.4.5 Blending Errors

As illustrated in (1), there are occasional blend words in the corpus, a phenomenon not explained by the dual-mechanism approach, which states that the retrieved irregular form blocks the regular suffixation rule (Patterson, Lambon-Ralph, Hodges and McClelland, 2001). Maslen et al. (2004) presents as a possible explanation that the stem form of the verb may not yet be acquired and the subject may be inflecting the past form as if it is a stem. However, this is not the case here, as AME uses the stem form *see*, *give* and *wake* in cycle one, SAR uses *see* and *think* in cycle one and *hear* occurs in cycle three and *see* appears in the fourth cycle of HIC's corpus (1). As these errors seem to be only occasional, and not persistent, it is possible that they can be dismissed as phonological mix-ups with no implications for the normal running of the system (Maslen et al., 2004).

(1) AME: he **gaved** it to the ehm old man [4]

AME: when he **woked** up [4]
AME: Miss_Lynch **gaved** us this [5]
AME: I **sawed** something outside [6]
AME: he **sawed** a murder [8]
SAR: my mum **sawed** a mice [1]
SAR: he **sawed** ehm castle [4]
SAR: he **hearded** that Jack got some monies [4]
SAR: he **thoughted** that he should cut the beanstalk [4]
HIC: you didn't **sawed** him [7]

6.4.6 Psycholinguistic differences in the Acquisition of Plural and Past Tense Morphology

Plunkett and Joula (1999) state that when the acquisition profile of nouns and verbs are compared, there are some important psycholinguistic differences which can be observed, the most important being that noun inflections are acquired at an earlier stage than verbal inflections and are acquired over a shorter period of time (Brown, 1973; Marchman et al., 1997). Marcus (1995) and Marchman, Plunkett and Goodman (1997) also state that the over-regularisation of noun-plurals is likely to occur earlier than the over-regularisation of past tense verbs.

A comparison of acquisition scores for both past tense marking and plural inflections for each subject across every cycle reveals that noun-plural inflections are acquired earlier than past-tense verbal inflections. This evidence, which holds for all five subjects, is illustrated below. That noun morphology is acquired earlier than past tense morphology can partly be attributed to the fact that irregular nouns are, when compared to irregular verbs, less complex in their inflected form, with nouns sharing their onsets with the singular form of the noun, such as *tooth* inflected to *teeth*. Irregular verbs, on the other hand, can undergo suppletion where the verb stem bears no relationship to the past tense inflection, as in *go*, which is inflected to *went* in the past tense.

**Table 6.4 Acquisition of plural
and past tense morphemes (HIC)**
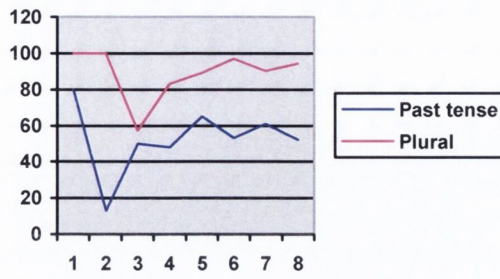
**Table 6.5 Acquisition of plural
and past tense morphemes (AND)**
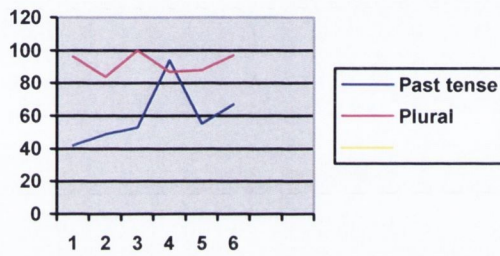
**Table 6.6 Acquisition of plural
and past tense morphemes (ELV)**
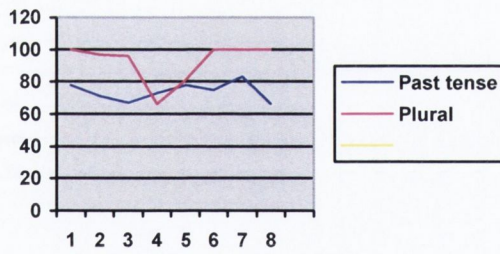
**Table 6.7 Acquisition of plural
and past tense morphemes (AME)**

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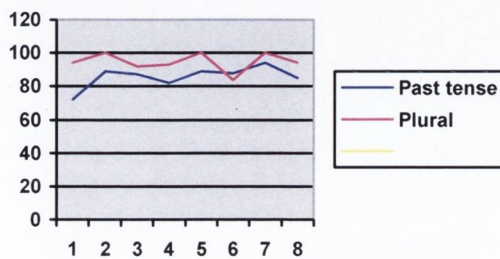
**Table 6.8 Acquisition of plural
and past tense morphemes (SAR)**
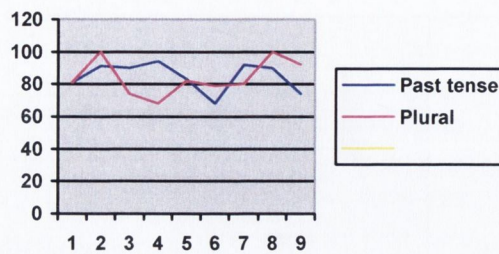
Evidence from this study does not support the claim made by Plunkett and Juola (1999), Marcus (1995) and Marchman, Plunkett and Goodman (1997) that over-regularisation of noun-plurals is likely to occur earlier than the over-regularisation of past tense verbs. With the case of two of the subjects in this study, HIC and ELV, OR errors in past tense inflection are observed prior to OR errors in noun plural inflections. Table 6.9 illustrates where OR errors are first observed.

Table 6.9: First observations of OR errors in plural and past tense inflections		
	OR errors in noun-plural inflections	OR errors in past tense inflections
HIC	Cycle 4	Cycle 1
AND	Cycle 1	Not observed
ELV	Cycle 4	Cycle 1
AME	Cycle 1	Cycle 4
SAR	Cycle 1	Cycle 1

In addition to over-regularising nouns consistently earlier than verbs, Plunkett and Juola (1999, p. 477) also claim that learners over-regularise nouns marginally longer than verbs. Data from SAR and ELV do not support this claim. SAR over-regularises both nouns and verbs up until cycle six. Data from ELV's corpus reveals that OR noun errors are observed only in cycle four, while OR verbal errors are observed for the duration of the eight cycles. For HIC and AME it is not possible to see if there is evidence from their data to support this claim, as OR verbal errors are still observed during the final cycle in the study, so it is not possible to ascertain at what stage the OR errors are no longer observed. Similarly, with AND, as he is still at a pre-rule stage with past tense morphology, OR errors are not observed at any stage in the study.

Plunkett and Juola (1999) also claim that no-change verbs, such as *hit*, *cut* and *put*, are less likely to be over-regularised than other irregular verbs. Data from SAR can be

used to refute this, as *put* is the verb which has been most over-regularised in the whole of her data, with four tokens of *putted*. Excluding the four tokens of *putted* (2) and the single token of *cutted* (2a), there are only eleven other tokens of over-regularised verbs in the data, with two tokens each of *sawed* and *throwed* and one token each of *thoughted*, *builded* and *hearded*. Therefore, considering the number of over-regularisations in total, it is significant that there are five tokens of a no-change verb in SAR's data, particularly in light of Plunkett and Juola's findings. There are two tokens of *hurted* in AME's data (3), making it one of three verbs that have the third highest number of over-regularisations in his data (*woked* and *heared* also have two tokens of over-regularisations).

(2) SAR: she putted some white [4]
    SAR: she putted ehm some raisins [4]
    SAR: she putted the gingersnap [4]
    SAR: she putted some cream [4]

(2a) SAR: she cutted her finger [5]

(3) AND: a camel eh [/] eh hurted him bum [1]
    AND: I hurted my leg [4]

6.5 Conclusion

The findings on past tense and plural morphology which were discussed in chapters 4 and 5 provide the springboard for a detailed discussion on the implications this study has on current theoretical models used to explain the acquisition of plural and past tense morphology. In addition, these findings are also used to explore the psycholinguistic differences in the acquisition of the two morphemes.

The evidence drawn from the analysis of this study's data poses problems for the single-system connectionist account on a number of fronts. First and foremost, for the connectionist approach to be plausible, input must be seen to be driving acquisition. There is no evidence in the data to support this. In addition, over-regularisation rates contradict the predictions of the single-mechanism approach and there is no evidence that the acquisition of the past and plural morpheme is a gradual process.

Data analysis is, however, consistent with the predictions made by the dual-mechanism approach. Evidence that subjects can readily pluralise frequently and

infrequently pluralised regular nouns, as well as being able to inflect frequently and infrequently occurring verbs, supports the predictions of the dual-route approach. In addition, over-regularisation rates calculated for the data in this study, as well as the qualitative change in morpheme use, provides further evidence to back-up Pinker's model, making it a useful framework for investigating the acquisition of English plural and past tense inflections

However, this does not leave the dual-mechanism approach free from challenges. The simultaneous use of verbs such as *gave / gaved* and *saw / sawed*, weakens the prediction of this model that blocking will prevent a verb being over-regularised once the correct form is known. A further challenge to this model lies in the appearance of blend words in the corpus. However, as both of these phenomenon occur only occasionally in the study, they can still be explained within the dual-mechanism framework, by the memory-retrieval adjunct and the phonological mix-ups respectively, with no implication on the normal operating of the system.

Finally, apart from discussing the findings of this study within the framework of the single or dual system, other observations relating to the psycholinguistic differences in the acquisition processes of nouns and plurals can also be made. Concurring with previous studies, data from this study confirms that noun-plural inflections are acquired earlier than past tense verbal inflections. However, there are findings from this study which are in conflict with previous studies on past tense and plural morphology. This study does not support the notion that the over-regularisation of noun-plurals is likely to occur earlier than the over-regularisation of verbs inflected for past tense. Evidence from this study also questions the claim that learners over-regularise nouns marginally longer than they do verbs. Finally, that no-change verbs are less likely to be regularised than other irregular verbs is called into doubt as a result of evidence to the contrary from two out of the five subjects in the study.

This chapter and chapter four investigated the plural [-s] marker, which shares the same linguistic process of suffixation and the same phonological form [-s] as the third person singular [-s] morpheme. However, unlike the plural morpheme, the third person singular marker involves agreement, where the subject and verb must agree with each other in terms of both number and person. It should therefore be acquired

later than the plural [-s] morpheme, based on the semantic complexity of the cognitive skill being mapped (Ruder, 2004). In the chapter that follows, the acquisition trajectory of the third person singular [-s] morpheme will be investigated, and chapter 11 will confirm whether findings from this study are consistent with Ruder's claim.

Chapter 7: The acquisition of the Third Person Singular [-s]

7.1 Introduction

This chapter investigates the use of the third person [-s] morpheme as it occurs in obligatory and non-obligatory contexts in the speech of the five subjects in the study and an error analysis is conducted on its occurrences in each utterance. One of the primary features of the use of this morpheme in the study is the apparent optional use of the non-finite verb form in an obligatory finite context.

7.2 The third person singular [-s] morpheme

In English, verbs marked with third person singular subjects are generally inflected with the morphological marker [-s], commonly referred to as a verbal agreement or number concord marker (Johnson, de Villiers and Seymour, 2005). Although the third person [-s] morpheme is often referred to as the present tense morpheme, whether or not the morpheme does carry tense at all has been argued in the literature, with Sauerland (2002), Bobaljik (2001) and Enç (1990), cited in Johnson, de Villiers and Seymour (2005) arguing that the present tense is more frequently marked by the present progressive [–ing], with the [-s] morpheme marking generic aspect. However, regardless of whether it is considered a carrier of tense or not, there is agreement that since [-s] only marks the third person singular of a verbal form and does not mark any other subject, it does indicate both number and person.

Although early morpheme studies on L1 acquisition carried out by Brown (1973) and de Villiers and de Villiers (1973) found that the third person [-s] morpheme is acquired at a relatively early stage, with children producing the morpheme at 90% criterion in obligatory contexts by the age of 36 months. Studies conducted by Johnson, de Villiers and Seymour (2005) and de Villiers and Johnson (2007) reveal that children use [-s] in both spontaneous and elicited production from the age of 3 years and 5 months, but that they use it with difficulty until the age of five or six, claiming that production of the morpheme is ahead of comprehension.

These studies contradict an earlier L1 study (Soderstrom, Wexler and Jusczyk, 2002, cited in Johnson et al., 2005) which used head-turn studies to demonstrate that

children as young as 19 months are sensitive to the verbal inflection [-s]. Soderstrom (2008) reconciles this apparent conflict by differentiating between early perceptual grammatical knowledge and later semantic comprehension, echoing Naigles (2002) who explains the discrepancy that older children have difficulty with the semantic aspect of the task, while experiments on younger children are perception studies and therefore devoid of semantic content.

Johnson, de Villiers and Seymour (2005) and de Villiers and Johnson (2007) examined whether children speaking Mainstream American English were sensitive to the third person singular [-s] as an agreement marker with the subject number, in order to ascertain whether children understood the linguistic information carried by the [-s] morpheme. Results from their study also reveal that there is no evidence that children at three or four years of age can comprehend the significance of the [-s] morpheme for the number of the subject.

7.3 Methodology

All obligatory cases that required the third person [-s] morpheme were identified and extracted from the data using a combination of KWAL, FREQ and COMBO commands in the CLAN programme. In addition, non-obligatory contexts that were inflected with the [-s] morpheme and third person singular null-subject sentences were also identified. A qualitative analysis was performed on extracted utterances, and errors were classified into the four categories as outlined below. In addition, morphological productivity was explored in the form of lexical productivity. In order to ascertain whether subjects dropped the third person [-s] when asking a question, all utterances that contained questions were also extracted from the data. Analysis did not include the irregular third person forms *has* and *does*.

Errors were divided into the following categories:
1. Omission of the [-s] morpheme
2. Inappropriate use of the [-s] morpheme
3. Overgeneration of auxiliary *be* with third person singular verb
4. Null subject sentence

The following cases were excluded from analysis:
1. Ambiguous forms such as *he's work in his car.*

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2. Lexical items that could function as either a noun or a verb, such as *splashes in the; drink and cake; his start is the bad one.*
3. Utterances where the subject of the verb is not clear, such as *every play car.*
4. Zero-change verbs such as hurt, cut and let, as in *because my tummy hurt.*
5. Utterances where the succeeding lexical item commenced with /s/, such as *and the boys stays here.*

Following Ionin and Wexler (2002, p. 111), six possible intended meanings for the overgeneration of *be* forms were identified and classified under the following headings:

1. Progressive meaning
2. Generic meaning
3. Stative meaning
4. Past tense meaning using stem form
5. Past tense meaning using irregular past-tense form
6. Future Meaning

Only the first three are relevant to the current study..

7.4 Acquisition Trajectory of third person singular [-s]

7.4.1 HIC

There are 153 third person singular contexts in HIC's data, comprised of 42 lexical items, of which only six (*sleep, love, eat, look, see, like*) are correctly inflected with the [-s] morpheme, although *sleep* and *like* also occur as both bare stem and with the auxiliary *be* (1) and the verbs *eat, look* and *see* occur as bare stem, while also occurring correctly inflected in some third person singular contexts (2). *Go* is the verb which occurs most frequently in third person singular contexts, with nineteen tokens, followed by *like* and *eat* with thirteen and twelve tokens respectively.

(1) HIC: she's like the cake [1]
    HIC: he is like a carrot [2]
    HIC: the duck like raining [7]
    HIC: he likes salads [8]

    HIC: no, he sleeps his bed [2]
    HIC: yeah and he sleep in his bed [4]
    HIC: he's slip [: sleep] [4]
    HIC: no one, <no one> [>] sleep my bed [7]

(2) HIC: he see something xxx the book [4]
    HIC: he's <see> [/] see little <girl> [//] boy there [4]
    HIC: he see tractor over there [5]
    HIC: he sees little xxx slide [7]

HIC: he eat the fish [4]
HIC: and the crocodile eats you [4]
HIC: he eats his lunch [5]
HIC: and that mouse eat all ten [5]

HIC: he looks somebody's ball in there [5]
HIC: he look over the tree [5]
HIC: and he look at the house [5]
HIC: he look at the bag [6]
HIC: look he looks some xxx dirty up there [6]

Table 7.1 gives details of the number of obligatory contexts in HIC's data and the number of morphemes supplied, in addition to giving information on the number of different lexical items that occur in a third person singular environment for each cycle, and the number of lexical items which are correctly inflected on at least one occasion. To take cycle four as an example, there are 29 obligatory third person [-s] cases, five of which are inflected with the third person singular [-s] morpheme. These 29 obligatory cases involve 14 different verbs. Three of the verbs are inflected with the [-s] morpheme on a least one occasion.

Table 7.1
Number of obligatory 3rd person [-s] contexts and number of morphemes supplied in each recording cycle

Obligatory Contexts	HIC1 14	HIC2 15	HIC3 4	HIC4 29	HIC5 36	HIC6 21	HIC7 16	HIC8 18
Morpheme supplied	1	1	0	5	2	1	1	1
Different lexical items	6	8	4	14	20	11	8	10
No. of different lexical items inflected with [s]	1	1	0	3	1	1	1	1
% correct*	7%	7%	0%	17%	6%	5%	6%	6%

*This figure is calculated on the number of morphemes supplied in an obligatory context

Performance is extremely low, with an average performance level of 8% across all eight cycles. Following Jia and Fuse's (2007) criteria, mastery of the morpheme is yet to be achieved. A sample of utterances where the verb is appropriately marked with the [-s] morpheme is given in (3), and (4) shows a sample of utterances where the [-s] morpheme is omitted.

(3) HIC: he loves sand [4]
    HIC: and the camel eats <something> [4]

(4) HIC: because my mom say no my sister [1]
    HIC: and the dinosaur bring the chocolate big tall [1]
    HIC: he start to go away [1]
    HIC: my dad give me page [2]
    HIC: he scribble all there [5]

In HIC's data, the overgeneration of *be* in a third person singular context occurs frequently in the first three cycles. Towards the end of the study it rarely, if ever, occurs. Table 7.2 shows the details of the overgeneration of *be* in contexts that require the third person [-s] singular morpheme, and the breakdown of the intended meaning of this overgeneration of *be*. In (5), a sample of such utterances can be seen.

(5) HIC: because he is go in the garden [1]
    HIC: he's climb my hand [1]
    HIC: my daddy is push him [2]
    HIC: he's leave grey in there [5]
    HIC: he is say thank you [5]
    HIC: he's take his head off [6]
    HIC: she's cry like this [7]

Table 7.2 % of overgeneration of *be* in 3rd person [-s] contexts								
% of overgeneration of *be* with 3PS	HIC1 36%	HIC2 60%	HIC3 25%	HIC4 10%	HIC5 6%	HIC6 5%	HIC7 6%	HIC8 0%
No. of overgeneration *be* errors	5	9	1	3	2	1	1	0
Intended meaning: Generic Stative Progressive	4 1	5 4	1	3	2	1	1	

HIC alternated between *he + bare stem*, *he + verb[-s]* and *he + aux + bare stem*, producing utterances such as *he cry, he cries* and *he is/'s cry* (Table 7.3). As *he is/'s + bare stem* began to decrease in frequency, it was replaced by *he + bare stem*. For HIC, use of *he + bare stem* prevails, accounting for 76% of all 3rd person singular contexts.

Table 7.3: The use of the various structures across all cycles				
Subject	he + bare stem	He + verb + [s]	Him + bare stem	He is +bare stem / he's + bare stem
HIC1	54%	8%	0%	38%
HIC2	40%	0%	0%	60%
HIC3	75%	0%	0%	25%
HIC4	73%	19%	0%	8%
HIC5	89%	5.5%	0%	5.5%
HIC6	81%	14%	0%	5%
HIC7	86%	7%	0%	7%
HIC8	88%	6%	0%	6%
Average %	**76%**	**9%**	**0%**	**15%**

In HIC's data, there is no instance where the finite form of the verb is used in an obligatory non-finite context.

7.4.2 AND

A total of 126 tokens occur in a third person singular context in AND's data, comprised of thirty five different lexical items, of which only thirteen are inflected with the third person [-s] morpheme. *Know* and *say* are the most frequently inflected verbs, with both verbs inflected four times each, followed by *tell, call* and *look*, which are all inflected twice. Although *know* and *say* are the most frequently inflected verbs, both of these verbs also occur as a bare stem in the same context, on five and one occasion respectively. *Eat* and *go* are the verbs which occur most frequently in third person singular context, occurring on thirteen occasions each. *Eat* appears as a bare stem on eleven occasions and twice with the auxiliary *be*, but is never correctly inflected with the [-s] morpheme. *Go* is correctly inflected on only one occasion, occurring as a bare stem on ten occasions and with the auxiliary *be* on three occasions, a sample of which can be seen in (6).

(6) AND: the wolf is not him and everyone **is go** [2]
     AND: and then the cat **he go** and see the house [2]
     AND: and then **him go** to the next door [2]
     AND: and then **he's go** [2]
     AND: the **Superman goes** a lot [3]
     AND: and the boy animal **is go** [3]
     AND: if **he go** in the sun and give him some more power if **he go** the sun [4]

Table 7.4 gives the number of obligatory contexts in each cycle and the number of times the [-s] morpheme is supplied. It also illustrates the number of lexical items

occurring in each cycle in a third person singular context, and the number of lexical items that are correctly inflected with the [-s] morpheme on at least one occasion.

Table 7.4
Number of obligatory 3rd person [-s] contexts and number of morphemes supplied in each recording cycle

Obligatory Contexts	AND1	AND2	AND3	AND4	AND5	AND6
	30	40	38	14	2*	2*
Morpheme Supplied	5	6	6	1	2*	1*
Different Lexical Items	14	14	14	9	2	2
No. of different lexical items inflected with [-s]	2	3	5	1	2	1
% correct	17%	15%	16%	7%	100%*	50%*

*Following Palotti (2007), 4 is the minimum number of tokens required in a recording cycle to be included in analysis

A sample of utterances where the [-s] morpheme is omitted is given in (7), and (8) gives a sample of utterances where the morpheme is appropriately supplied. For the purpose of calculating mastery of the morpheme, the final two cycles are omitted from analysis, as following Palotti (2007), four is the minimum number of tokens needed to be included. Based on these figures, AND's performance for this morpheme declines gradually over the first four cycles, with an average performance of 15%. Following acquisition criteria defined by Jia and Fuse (2007), AND has yet to achieve mastery of the third person singular morpheme.

(7) AND: my daddy same he know English and Romania [1]
    AND: yes and him stay like that [1]
    AND: him play with something fight [1]
    AND: argh, he hold a spider [1]
    AND: and him pat him on the back [1]
    AND: and the little man go in there and he see a wolf and then he eat the wolf [3]

(8) AND: and the mammy goat says to the kids [2]
    AND: no my daddy tells me that [2]
    AND: and then Superman comes and tells the girl something [3]
    AND: oh when he turns something green [4]
    AND: it will it works [5]
    AND: yes I want to see how it looks [5]
    AND: I know to fly because he needs a big one [6]

There are two cases where AND inappropriately inflects a verb with the [-s] morpheme (9). On one occasion, a finite verb is used in an obligatory non-finite context, and there is one case where there is a null-subject used with the third person singular marker (10).

(9) AND: I have to thinks [1]
       AND: Looks there [5]

(10) AND: oh yeah, wears him pants [3]

For AND, the overgeneration of *be* in a third person singular context is a frequent occurrence in the first half of the study, after which it rarely, if ever, occurs. A sample of such utterances is given in (11). Table 7.5 shows the details of the overgeneration of *be* in contexts that require the third person [-s] singular morpheme, and the breakdown of the intended meaning of this overgeneration of *be*.

(11) AND: because he's come to Romania [1]
       AND: because the baby's like milk [1]
       AND: the monster is fall off [2]
       AND: the sun is help Superman to get powers [3]
       AND: and he's eat him [3]
       AND: it's a thing who's bring you down [4]

Table 7.5 % of overgeneration of *be* in 3rd person [-s] contexts						
% of overgeneration of *be* with 3PS	AND1 7%	AND2 15%	AND3 8%	AND4 7%	AND5 0%	AND6 0%
No. of overgeneration *be* errors	2	6	3	1	0	0
Intended meaning: Generic Stative Ambiguous	1 1	5 1	1 2	1		

In this study, AND alternates between *he cry, he cries, him cry* and *he's cry* (Table 7.6). As the study progresses, the non-nominative subject *him + bare stem* decreases in frequency and is replaced by *he + bare stem*. *He + verb[s]* and *he is/'s + bare stem* remains fairly constant throughout the study. AND is the only subject who frequently uses the accusative pronoun *him* rather than nominative pronoun *he*. For AND, use of

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he + bare stem prevails, accounting for 51% of all 3rd person singular contexts respectively. AND frequently uses *him + bare stem*, a sample of which is illustrated below (12).

(12) AND: him stay like that [1]
    AND: and him pat him on the back [1]
    AND: and then him bring to the shop [1]
    AND: and him eat everything in the house and then him go to the next door [2]
    AND: and then him fire with the gun [6]

Table 7.6: The use of the various structures across all cycles				
Subject	he + bare stem	He + verb + [s]	Him + bare stem	He is +bare stem / he's + bare stem
AND1	34%	17%	42%	7%
AND2	44%	15%	26%	15%
AND3	64%	15%	13%	8%
AND4	86%	7%	0%	7%
AND5*	0%*	100%*	0%*	0%*
AND6*	0%*	50%*	50%*	0%*
Average %	**51%**	**17%**	**22%**	**10%**

*These cycles should be discounted from analysis, as there are less than the required four tokens in each cycle

7.4.3 ELV

There are 66 third person singular contexts in ELV's data, comprised of 31 different lexical items. *Want* and *go* are the verbs occurring most frequently in an obligatory third person [-s] context, occurring on eight occasions each, followed by *drive* and *come* with six and four tokens respectively. Out of the 31 lexical items, 26 occur correctly inflected with the [-s] morpheme, although it should be noted that six of these verbs also occur as a bare stem in a third person singular context. In addition to showing the number of obligatory contexts and the number of cases where these obligatory contexts are inflected with the third person [-s] morpheme, table 7.7 also illustrates the number of different lexical items that occur in a third person singular environment for each cycle, and the number of lexical items which are correctly inflected with the [-s] morpheme on at least one occasion.

Table 7.7
Number of obligatory 3rd person [-s] contexts and number of morphemes supplied in each recording cycle

Obligatory Contexts	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8
	6	13	7	19	3*	3*	3*	12
Morpheme supplied	4	10	6	13	2*	2*	2*	10
Different Lexical Items	4	8	5	13	3	3	4	7
No. of different lexical items inflected with [-s]	2	6	4	10	2	2	3	6
% correct	67%	77%	86%	68%	67%*	67%*	75%*	83%

*Following Palotti (2007), 4 is the minimum number of tokens required in a recording cycle to be included in analysis

As can be seen from Table 7.7, ELV's accuracy rate is high, but falls short of meeting Jia and Fuse's (2007) criteria for mastery, with an average rate of mastery in the first four cycles of 73%. In (13), a sample of utterances that are appropriately marked with the [-s] morpheme is given, while (14) shows utterances where the [-s] morpheme has been omitted.

(13) ELV: my mam brings me on the car [1]
   ELV: he likes Batman [1]
   ELV: the water goes out of here [2]
   ELV: it shows on the tele(vision) [2]
   ELV: he climbs up in the beanstalk [2]
   ELV: the car comes [2]
   ELV: he loves loads of +... [3]
   ELV: the boy who wears the same shoes [3]

(14) ELV: he live beside me [1]
   ELV: and he press the stick [2]
   ELV: he always run away like that, he run very fast [2]
   ELV: the duck come here [3]
   ELV: my mam drive sixty sometimes [4]
   ELV: he always eat <rab> [/] the rabbit's food [8]

There is only one case of the overgeneration of *be* in ELV's data, and it is stative in its intended meaning (15).

(15) ELV: it's look will fit [6]
      [it looks like it will fit]

ELV primarily alternates between *he cry* and *he cries,* although use of the correct form prevails (Table 7.8). Utterances containing the structure *he is/'s cry* are extremely low.

Table 7.8: The use of the various structures across all cycles				
	He + bare stem	He + verb + [s]	Him + bare stem	He is +bare stem / he's + bare stem
ELV1	33%	67%	0%	0%
ELV2	29%	71%	0%	0%
ELV3	17%	83%	0%	0%
ELV4	30%	70%	0%	0%
ELV5*	33%*	67%*	0%*	0%*
ELV6*	0%*	67%*	0%*	33%*
ELV7*	25%*	75%*	0%*	0%*
ELV8	11%	89%	0%	0%
Average %	**25%**	**74%**	**0%**	**1%**

*These cycles should be discounted from analysis, as there are less than the required four tokens in each cycle

There are two cases in ELV's data where the finite form of the verb occurs in an obligatory non-finite context (16).

(16) ELV: they cuts the [/] the bad rabbit [2]
     ELV: do you know them who hangs up there [7]

7.4.4 AME

A total of 65 obligatory third person [-s] environments occur in AME's data, comprised of 35 different lexical items, of which 28 occur correctly inflected with the morpheme [-s]. However, six out of the 28 verbs also occur either as a bare stem or with the auxiliary *be* in a third person singular environment; *give, get, disappear, look, take* and *want* (17). The verb *want* occurs with the greatest frequency in such an environment, with five tokens, followed by *go* and *get* with four tokens each. *Come, take* and *think* each have three tokens. *Want* is also the verb which is most correctly inflected with the [-s] morpheme.

(17) AME: he give us a paper [3]
     AME: if he gives me his Pringles [4]

     AME: my brother always get something [3]
     AME: it gets cold [5]
     AME: it's gets sticky [5]

AME: the rabbit disappear in the hat [3]
AME: and then it disappears [3]

AME: it's where a little girl want to give ehm like things for his granny [5]
AME: Angelica wants the cake [2]

AME: she looks like a girl [3]
AME: it look like a girl [3]

AME: it takes ages [4]
AME: it's take ages [4]
AME: it take for ninety hours [8]

In addition to showing the number of obligatory contexts in each cycle of AME's data, and the number of times a particular context is inflected with the [-s] morpheme, table 7.9 also illustrates the number of lexical items that occur in a third person singular environment for each cycle, and the number of lexical items which are correctly inflected on at least one occasion.

Table 7.9
Number of obligatory 3rd person [-s] contexts and number of morphemes supplied in each recording cycle

Obligatory Contexts	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8
	11	5	13	11	11	7	4	3*
Morpheme Supplied	10	4	6	7	8	7	4	3*
Different Lexical Items	8	3	10	8	8	7	4	3
No. of different lexical items inflected with [-s]	7	2	5	6	6	7	4	3
% correct	91%	80%	46%	64%	73%	100%	100%	100%*

*Following Palotti (2007), 4 is the minimum number of tokens required in a recording cycle to be included in analysis

Although AME performs particularly well in some cycles, acquisition criteria according to Jia and Fuse's (2007) is based on consecutive cycles, therefore he does not achieve the necessary level of mastery. AME's average level of acquisition across the first seven cycles is 74%. A sample of utterances where the verbs are correctly

inflected with the [-s] morpheme is given in (18), and (19) illustrates utterances where the [-s] morpheme is omitted.

(18) AME: <she just lifts me up> [<] to go to school and go home [1]
    AME: it eats a fish [1]
    AME: my mom says everyday you learn Arabic [1]
    AME: the piece goes here [1]
    AME: he flies away [4]
    AME: he falls down [4]

(19) AME: then he turn off the light [3]
    AME: my brother always get something in the middle of the egg [3]
    AME: he give us a paper and we go to the shop [3]
    AME: I used to live where he live but now I live here
    AME: and my mum see [5]
    AME: no, it take for ninety nine hours [8]

There are three cases of overgeneration of *be* in AME's data, one progressive and two generic in intention (20).

(20) AME: she's talk to him [4]
    [she is talking to him]
  AME: it's take ages [4]
    [it takes ages]
  AME: it's gets sticky [5]
    [it gets sticky]

Similar to ELV, AME mainly alternates between *he cry* and *he cries,* although use of the correct form prevails (Table 7.10). Utterances containing the structure *he is/'s cry* are extremely low, occurring only twice, as discussed above.

Cycle	he + bare stem	He + verb + [s]	Him + bare stem	He is +bare stem / he's + bare stem
Table 7.10: The use of the various structures across all cycles				
AME1	9%	91%	0%	0%
AME2	20%	80%	0%	0%
AME3	50%	50%	0%	0%
AME4	30%	60%	0%	10%
AME5	18%	73%	0%	9%
AME6	0%	100%	0%	0%
AME7	0%	100%	0%	0%
AME8*	34%*	66%*	0%*	0%*
Average %	**23%**	**74%**	**0%**	**3%**

*These cycles should be discounted from analysis, as there are less than the required four tokens in each cycle

As with HIC, there is no instance where AME inappropriately uses the finite form of a verb in an obligatory context.

7.4.5 SAR

There are 72 third person singular contexts in SAR's data, comprised of 35 lexical items. *Get* occurs most frequently in such a context, with nine tokens, followed by *go* and *look*, with seven and five tokens respectively. Thirty-two of the 35 verbs are correctly inflected with the [-s] morpheme on all occasions. The three exceptions are *brush* and *see*, which occur as a bare stem and *listen* which occurs with the auxiliary *be* (21).

(21) SAR: yeah and he is listens to the song [1]
    SAR: and she brush my hair [3]
    SAR: if she see a two and a four in my house [9]

Table 7.11 illustrates the number of obligatory contexts and the relevant number of morphemes supplied. Table 7.11 also illustrates the number of lexical items that occur in a third person singular environment for each cycle, and the number of lexical items which are correctly inflected on at least one occasion.

Table 7.11
Number of obligatory 3rd person [-s] contexts and number of morphemes in each recording cycle

Obligatory Contexts	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9
	5	6	17	19	11	3*	1*	4	6
Morpheme supplied	5	6	16	18	11	3*	0*	4	5
Different lexical items	7	4	12	11	8	2	0	3	6
No. of different lexical items inflected with [-s]	6	4	11	11	8	2	0	3	5
% correct	100%	100%	94%	95%	100%	100%*	0%*	100%	83%

*Following Palotti (2007), 4 is the minimum number of tokens required in a recording cycle to be included in analysis

Following Jia and Fuse's (2007) criteria, SAR has achieved mastery of this morpheme in cycle three. The average score over the nine cycles is 94%. A sample of utterances

where the verb is correctly inflected with the [-s] morpheme is illustrated in (22), and (23) gives two utterances where the morpheme has been omitted.

(22) SAR: the dog plays it faster [1]
    SAR: my big sister sleeps at the up part [1]
    SAR: and the dog looks funny [2]
    SAR: my mum wakes up [2]
    SAR: she wears a hat [3]
    SAR: she scrapes everybody [4]
    SAR: she checks peoples [5]
    SAR: Robin sits beside Tony [5]

(23) SAR: and she brush my hair [3]
    SAR: if she see a two and a four in my house [7]

As with AME and ELV, SAR primarily alternates between *he cry* and *he cries,* although use of the correct form prevails (Table 7.12). Utterances containing the structure *he is/'s cry* are extremely low.

Table 7.12: The use of the various structures across all cycles				
Cycle	he + bare stem	He + verb + [s]	Him + bare stem	He is +bare stem / he's + bare stem
SAR1	0%	86%	0%	14%
SAR2	0%	100%	0%	0%
SAR3	5%	95%	0%	0%
SAR4	0%	100%	0%	0%
SAR5	0%	100%	0%	0%
SAR6	0%*	100%*	0%*	0%*
SAR7	0%*	0%*	0%*	0%*
SAR8	0%	100%	0%	0%
SAR9	20%	80%	0%	0%
Average %	3%	96%	0%	1%

*These cycles should be discounted from analysis, as there are less than the required four tokens in each cycle

There are four cases where the third person [-s] morpheme is inappropriately used by SAR in an obligatory non-finite context (24). There is one occasion where the progressive participle is used in an obligatory finite context (25). In SAR's data, the overgeneration of *be* is insignificant, occurring on only one occasion, with stative being the intended meaning (26).

(24) SAR: ducks comes [1]
    SAR: me and Sangita sleeps on a bunk bed [3]
    SAR: when I comes over there [3]
    SAR: it's going to gets bigger [4]

(25) SAR: Reshma is only speaking English in her family [7]
    [Reshma only speaks English with her family]

(26) SAR: yeah and he is listens to the song [1]
       [he listens to the song]

7.5 Conclusion

This chapter discussed the use of the third person singular [-s] morpheme as it occurred in both obligatory and non-obligatory contexts in the speech produced by the five subjects. In addition, an error analysis was also conducted on the data. SAR is the only subject who has mastered the morpheme. The remaining four subjects frequently use the non-finite form of the verb in an obligatory finite context. For two subjects, HIC and AND, this non-finite form accounts for the majority of their productions in a third person context.

Research into the acquisition of the third person [-s] morpheme in L2 acquisition has mainly focused on this apparent optional use of the non-finite form of the verb in an obligatory finite context, with constructions such as *he go* occurring in the data, rather than the appropriate finite form *he goes*. The following chapter focuses on prominent studies in the area, which include Ionin and Wexler (2002), Meisel (1997), Prévost and White (2000), Wexler (1994, 1996) and Theakston et al. (2003), and these will be discussed in order to see if this study supports or challenges the relevant theories as they are discussed in the literature.

Chapter 8: Discussion Chapter on Third Person Singular [-s]

8.1 Introduction

As is evident from the previous chapter, subjects in this study exhibit optionality in their use of inflectional morphology, alternating between the use of bare stems and inflected forms, in places where inflection is obligatory in adult speech. Brown (1973) interpreted the production of these utterances in terms of lack of knowledge of the necessary inflections, while Wexler (1994, 1996) argues in his Optional Infinitive Hypothesis that they are a product of what the child considers the optional use of infinitives in a context that would require a finite form in adult language. Under the Impaired Representation Hypothesis, Meisel (1997), Beck (1998) Eubank (1993/1994) and Eubank et al. (1997) argue that this optionality in production of tense and agreement morphemes is due to the fact that the functional categories of tense and agreement are somewhat impaired in the L2 grammar, while Prévost and White (2000) put forward the notion that functional categories are present and the lack of overt inflection attributable to some other factor, as discussed in the form of the Missing Surface Inflection Hypothesis (MSIH), which is an extension of the Missing Inflection Hypothesis put forward by Haznedar and Schwartz (1997). Theakston, Lieven and Tomasello (2003) put forward an alternative theory which relates to a constructivist, input-driven approach. The Missing Agreement Account and the Implicit Rule Deficit Account are two models which have been put forward by Clahsen (1989) and Gopnik and Goad (1997) to account for the use of non-finites in the speech of language-impaired children. This chapter will discuss the present study's findings in terms of the above theories and look at what implications this study has on current theoretical work.

8.2 The Impaired Representation Hypothesis (IRH)

The impairment approach, which has been put forward to explain the optional use of non-finite verbs in an obligatory finite context, posits that the functional categories of tense and agreement are impaired or underspecified in second language acquisition. In his study which looks at the development of negation in L2 learners of French and German, Meisel (1997) concludes that there is no finiteness distinction in L2 inflection and that functional categories, features or feature strength are impaired in

L2 grammar. For the impairment explanation to hold true, L2 learners should create errors in their use of both finite and non-finite verbs, placing non-finite verbs in finite position, as well as finites in non-finite position, as the mechanism necessary to check the agreement features are impaired.

Observations from this study demonstrate that while the former is true, subjects rarely use a finite in a non-finite position, providing little support for the impairment approach. There are only eight occasions in the total corpus where a finite form is incorrectly used (1), however there are 238 occasions where non-finite verbs are used incorrectly, this is broken down for each subject in Table 8.1.

(1) *ELV: they cuts the [/] the bad rabbit [2]
     *ELV: do you know them who hangs up there [7]
     *AND: I have to thinks [1]
     *AND: looks there [5]
     *SAR: ducks comes [1]
     *SAR: me and Sangita sleeps on a bunk+bed [3]
     *SAR: when I comes over there [3]
     *SAR: it's going to gets bigger [4]

Table 8.1: No. of non-finite verbal errors per subject					
Subject	AND	HIC	ELV	AME	SAR
No. of finite verb errors	2	0	2	0	4
No. of non-finite verb errors	91	116	15	14	2

The IRH has also been challenged in the literature. Prévost and White (2000) dismiss the notion that functional categories are impaired or missing in their discussions on the Missing Surface Inflectional Hypothesis (MSIH). Similarly, Ionin and Wexler (2002), in their study of Russian children acquiring English as a second language, argue that, rather than being impaired, tense is, in fact, fully specified.

8.3 Missing Surface Inflection Hypothesis (MSIH)

The Missing Surface Hypothesis was put forward by Prévost and White (2000), as an extension of Haznedar and Schwartz's (1997) Missing Inflection Hypothesis, and supported by Ionin and Wexler (2002) and Helland and Alvarez (2007). Although it makes the same predictions as the IRH with regard to non-finite verbs, albeit with different reasons, the two hypotheses differ as to their predictions regarding finite verb forms. The MSIH posits that finite forms are genuinely finite and should occur in

finite position rather than non-finite position, while non-finite forms act as the default and sometimes occur as a substitute for inflection and sometimes are truly non-finite, resulting in their position varying between finite and non-finite. The IRH, on the other hand, posits that language learners produce non-finite forms in obligatory contexts as a result of the impairment in the feature-checking mechanism, the result being that non-finite forms can occur anywhere.

Prévost and White (2000) and Lardiere (2000) argue that if functional categories or functional features are impaired in the L2, as implied by the impairment explanation, then there is nothing that would prevent the production of incorrect inflectional morphemes or the random use of finite and non-finite verbs in obligatory finite or non-finite contexts. They cite evidence that L2 learners frequently use non-finite verbs in finite context, but that they rarely place finite verbs in non-finite contexts. Prévost and White (2000) argue that there is no evidence of syntactic impairment in L2 grammar and that functional categories are indeed present. Instead, they put forward the notion of a mapping problem between abstract features and surface morphological forms that can account for the omission of agreement morphology in the acquisition of a second language, suggesting that the default non-finite form is produced in a finite context:

> L2 learners have abstract features for finiteness and agreement in their interlanguage representation, as evidenced by the syntactic and morphological behaviour of finite verbs. They do, however, exhibit problems with the surface morphological realization of particular forms, sometimes resorting to default forms; there are in other words, ...'mapping problems' between surface forms and abstract features.

Prévost and White (2000, p. 127)

This mapping problem, which is also supported by Lardiere (2000), is explained in terms of Distributed Morphology (DM), a framework of theories put forward by Halle and Marantz (1993), cited in Prévost and White (2000). DM posits that an inflected morpheme is associated with grammatical features such as tense, number, gender or person, and can be inserted into a host node in the syntax as long as its features are consistent with the features of the hosting node. While the features of the syntactic or hosting node will be fully specified, features of the lexical item that it will be hosting may be either partially specified or underspecified. It is not necessary for there to be

an exact match between features of the host node and the features of the lexical item to be inserted, once the features of the lexical item are a subset of the host node, it is sufficient. If there is not an exact match, then there is competition between the various items for inflection, and the item which is the best possible match wins out and is inserted into wherever the syntax has determined it should go. Using DM, Prévost and White (2000) argue that L2 learners have acquired the relevant features of the terminal nodes in the syntax, by means of their L1, from Universal Grammar (UG) or from their L2 input, but that they have not fully acquired feature specifications of the associated lexical items. Therefore, non-finite verbs are underspecified for finiteness and consequently can be inserted into a node bearing the [+finite] feature. Finite verbs, on the other hand, are specified for finiteness [+finite], and therefore cannot be inserting into a non-finite node [-finite]. As non-finite verbs are underspecified, they function as defaults in L2 learning, and can be produced in either [-finite] or [+finite] contexts, thus explaining the occurrence of non-finite forms in obligatory finite contexts.

In order to investigate whether the MSIH could offer an explanation for the use of finites by the subjects in this study, following Ionin and Wexler (2002, p. 104), the following two hypotheses are explored:

> Hypothesis 1: The L2 learners will produce non-finite forms in place of finite forms.
> Hypothesis 2: Since the abstract categories and feature-checking mechanisms are in place for L2 learners, there will be little or no incorrect finiteness inflection in the speech of the L2 learners.

Ionin and Wexler (2002) also explore a third hypothesis which looks at suppletive agreement forms; namely the copula *be* and the auxiliary *be*, however, this study will focus only on the hypotheses relating to the third person singular morpheme.

The first hypothesis was confirmed by observing the number of times non-finite forms are produced in place of finite forms. Table 8.2 shows the percentage of times that a non-finite form was found in an obligatory finite context. Omission of the morpheme was particularly high for HIC and AND, and relatively high for AME, providing evidence to support the first hypothesis.

Table 8.2				
% of cases where 3rd person [-s] was omitted by each subject				
HIC	AND	ELV	AME	SAR
92%	83%	26%	25%	6%

The second hypothesis was also confirmed with only eight incorrect cases of finite inflection. These eight cases are given in (1) in the previous section. In the current study, when subjects did use the [-s] morpheme, they used it in an appropriate context on 93% of occasions. This figure reflects results from previous studies conducted by Leonard, Miller and Owen (2000) and Prévost and White (2000) which show that although children often omitted the third person [-s] morpheme, when they did produce it, it was used appropriately approximately 95% of the time. Thus, while a language learner might produce the utterances *she play* or *she plays*, they are unlikely to produce *you plays*. This extremely low number of incorrect cases of finite use in the current data supports the second hypothesis, namely that there will be little or no incorrect finiteness inflection in the speech of L2 learner. This evidence also presents a challenge for the impairment approach, as if functional features were impaired or missing, then checking cannot take place and there would be no way to prevent agreement mismatches, therefore, a higher rate of incorrect use of the finite inflection would be expected. Thus, it can be said that in the L2 grammar, features and the feature checking mechanism that underlies verbal finiteness are fully in place, ensuring that finite verbs should only occur in finite position. Therefore, it can be said that data from this study does provide evidence to support the MSIH.

In addition, according to the MSIH, as features are assumed to be present in the initial period of language acquisition, it should not be the case that non-finite forms occur only in the early stages of the acquisition process and finite forms occur at a later stage in the acquisition process. Instead, Prévost and White (2000) state that L2 learners will continue to use non-finite forms even when they have acquired finite forms, and explain this by suggesting that occasionally, access to the finite form is blocked as a result of communication or processing pressures. This indeed is the case in this study, as subjects such as SAR, who is considered to have mastered the morpheme under criteria set by Jia and Fuse (2007) produces utterances where a non-finite is used in an obligatory finite context (2a) and also uses finite verbs in obligatory non-finite contexts (2b).

(2a) SAR: if she see a two and a four in my house [9]
    SAR: she brush my hair [3]

(2b) SAR: ducks comes [1]
    SAR: when I comes over here [3]
    SAR: me and Sangita sleeps on a bunk + bed [3]

Therefore, in summary, data from this study supports the MSIH, specifically that learners will produce non-finite forms in place of finite forms, that finite verbs should only occur in finite position, and that non-finite verbs do not only occur in finite position in the early stages of language acquisition and, similarly, that finite forms do not occur only at a later stage in the acquisition process.

8.4 Optional Infinitive Hypothesis

Another explanation which has been put forward as to why children produce sentences with fewer inflected forms than adults is the Optional Infinitive (OI) hypothesis, put forward by Wexler (1994, 1996). The OI hypothesis is a theory that refers to a stage in the early grammatical development of a language learner where both finite and non-finite forms are simultaneously produced in obligatory finite environments. The theory, which uses a Unique Checking Constraint (UCC) framework, attempts to provide a unified nativist account of children's knowledge of verb movement and verb inflection across languages (Croker, Pine and Gobet, 2000). The UCC, which governs the grammar of the child, results in errors in languages that require double-checking, such as obligatory subject languages like English, as the UCC prevents checking against two functional categories in child grammar, in this case tense and agreement. As explained by Kallulli and Tasmowski (2008, p. 349), the essential idea of the UCC is that whenever double-checking of a D-feature is required, children will fail to compute the derivation, and as the UCC applies to the grammar as a whole, it allows children to accept and produce ungrammatical constructions. As only one D-feature will be checked, either the D-feature of tense and / or the D-feature of agreement will be omitted. Thus, tense and agreement can be left underspecified. According to this model, language learners go through an initial stage in language acquisition – the optional infinitive stage - during which they lack the knowledge that tense and agreement marking is obligatory in finite clauses. Until this

knowledge matures at a later stage in the acquisition process, they will continue to produce finite and non-finite forms where a finite form is obligatory in the adult language, and this alternating between finite and non-finite forms is the most fundamental property of the Optional Infinitive Hypotheses.

The theory can be used to explain and predict a number of phenomena occurring in the speech of learners acquiring English, such as the use of finite and non-finite verb forms in finite contexts, so that learners are likely to produce correct utterances such as *he eats* parallel to producing incorrect utterances such as *he eat*. As was evident in the previous chapter, subjects in this study did produce these parallel forms as predicted by the OI hypothesis.

A further property associated with the OI stage is the use of the accusative case in place of the nominative pronoun (Prévost and White, 2000). This theory predicts that language learners might say *he eat*, *he eats* or *him eat*, but should never produce the accusative pronoun with a verb that is inflected with the third person singular morpheme, such as *him eats*. This prediction is supported by the data in this study. In third person singular utterances produced by AND, the only subject in the study to use the accusative pronoun in place of the nominative, 22% contain the accusative pronoun *him*, but all cases are followed by the bare stem, but never the inflected stem. However, it should be noted that, other than AND, there is no other evidence in the corpus of non-nominative pronouns occurring in utterances, despite some subjects still being at a very early stage in acquiring the third person singular [-s] morpheme.

The OI framework can also be used to explain why learners' utterances tend to agree in person and number with their subject when they use tensed forms, such that a language learner tends to say *he goes* rather *I goes* or *you goes*. There appears to be evidence from the data in this study that subjects are sensitive to the [-s] morpheme as a marker of third person agreement, as there are only two cases in the whole corpus where the morpheme is used to mark a subject other than third person singular (3). Hawkins (2007) concurs with this, stating that when inflected forms are used, there is little mismatch in subject and verb agreement, with the majority of agreement and tense dependencies being target-like in production.

(3) AND: but I don't know how you calls [4]
     SAR: when I comes over here [3]

Consistent with the OI hypothesis, which predicts that when verbs are marked for finiteness, they are almost invariably correct, commission errors are extremely few in this study, accounting for only 7% of occasions where verbs were inflected with the [-s] morpheme. This has previously been illustrated in discussions on the IRH and the MSIH.

The OI hypothesis is not, however, without criticism. Croker, Pine and Gobet (2000) and Freudenthal, Pine and Gobet (2005) point out that predictions made by the OI hypothesis are qualitative rather than quantitative. It can predict the presence or absence of certain kinds of errors, it does not, however, say anything about when, where or how likely it is for these errors to occur, with the gradual decline in OI errors explained by the notion of maturation. In addition, Haznedar and Schwartz (1997) challenge the OI hypothesis, questioning whether children learning a second language do actually go through an OI stage in the same way as children learning a first language. Based on evidence from their study of a Turkish boy learning English as a second language, they cite little evidence of null-subject sentences and little evidence of the accusative case being used in place of the nominative pronoun. Indeed, Ionin and Wexler (2002) also argue that L2 learners do not go through the OI stage that L1 children commonly go through between 2-4 years of age. Similarly, Helland and Alvarez (2007), using results from a longitudinal study of five Spanish children learning English, show that child L2 English replicates to a certain extent the OI stage of child L1, but lacks the co-existence with finite forms. They echo Haznedar and Schwartz (1997) in citing the Missing Inflection Hypothesis to explain this lack of alternating between finite and non-finite forms. Helland and Alvarez (2007) also point out that one of the fundamental tenets of the OI hypothesis is the assumption that the OI stage can only mature once past tense is acquired and understood, however, they point out that as most children acquiring an L2 will have already developed a notion of tense in their first language, there is a fundamental difference in the starting point of the proposed L2 stage.

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One of the properties associated with the OI stage in L1 acquisition is null subject use with either finites or non-finites (Prévost and White, 2000). In a study conducted by Haznedar and Schwartz (1997), they found that overt subjects were marked as obligatory before verbal finiteness was. There are only thirteen cases of subject omission in this study (4), providing little evidence for the OI theory. Eleven of these null subject cases are found in HIC's data, the subject who is at the earliest stage in the acquisition process when it comes to the third person [-s] morpheme. For all other subjects, the null subject was virtually non-existent, suggesting that overt subjects become obligatory at an early stage in the acquisition process, prior to finiteness being marked as obligatory. This is similar to one of the findings in Ionin and Wexler's (2002) study, where a quarter of their null subject cases came from a single transcript and was uttered by one of the least advanced L2 learners in the study.

(4) AME: a pie with worms in it, wants to eat and he wants a chocolate bone [2]
     AND: oh yeah, wears him pants [3]
     HIC: is [/] is like the baby [1]
          [she likes the baby]
     HIC: bring a page color [1]
     HIC: brings [//] bring a page because color [1]
     HIC: because the garden scratch because scratch his leg and go in the (a)nother
          one house [2]
          [because the garden's bushes scratched the rabbit and the rabbit goes into the
          garden next door]
     HIC: brush <her> [//] his hair [3]
     HIC: and give his mommy chicken [4]
     HIC: yeah and eats that one, the grass one [4]
     HIC: yeah, eat all, eat all his lunch like that [5]
     HIC: and he go with his mammy give him cake [6]
     HIC: and that sleep all with his teddies [7]

In summary, evidence from this study can be used to support some of the predictions made by the OI theory. These include the parallel production of both non-finite and finite forms in obligatory finite contexts, the occurrence of an accusative pronoun with a non-finite verb, but never with a finite verb, agreement in person and number with the subject of the verb in a tense form, and few commission errors. However, there are properties of the OI theory that are not found in the present study, slightly weakening the support for the theory. Such properties include the lack of evidence from four of the five subjects of non-nominative case use, and the small amount of evidence of the null subject use with either finites or non-finites.

8.5 Constructivist, Input-Driven Approach

An alternative explanation put forward, unlike the OI theory which assumes that children operate with an abstract understanding of tense and agreement, posits that the use of non-finite forms in a finite context is a result of the occurrence of questions in their input (Croker, Pine and Gobet, 2000; Theakston, Lieven and Tomasello, 2003). When questions are formulated, the subject, such as *he*, is immediately followed by a non-finite form, such as *eat*, resulting in the string *he eat* occurring in the language learner's input. This constructivist, input-based approach proposes that the optional use of the third person singular [-s] may reflect item-based learning and the patterns of verb use in the language to which children are exposed (Theakston, Lieven and Tomasello, 2003). This approach is based on the fact that most of the error patterns predicted by the OI hypotheses can be found in the child's input, while forms predicted to be absent by the OI hypotheses are not found in the child's input. For example, the sequence *he eat* could appear in the child's input outside the matrix clause in the form of *what will he eat* while the sequence *him goes* will not be found in the input. Examples of such questions which are uttered by the investigator in this study are given in (5).

(5) NMK: and does **he eat** anything apart from carrots?
     NMK: and does **he like** your mammy or your daddy?
     NMK: and does your **sister hurt** him?
     NMK: and when does your **daddy use** it?
     NMK: and what kind of job does that **girl do**?
     NMK: why does **he drink** only milk?
     NMK: and does your **brother play** with your play + station
     NMK: does **she like** flowers?
     NMK: does your **mummy tell** you that story?
     NMK: what would **she give** you to eat in the school?

If children acquire language structures on an item-based approach, they will acquire different language patterns from declarative sentences and from questions. They would therefore acquire the string *he eat* from a question in their input, and likewise, acquire *he eats* from a declarative sentence. Consequently, they might produce both finite and non-finite forms in finite contexts, or as Theakston et al. (2003) point out, it could cause them to be confused as to whether or not the [-s] morpheme needs to be supplied at all. This approach would help predict what verbs are more likely to be inflected correctly with the third person singular marker, with children more likely to

produce finite verbs in finite contexts if the particular verb appears modelled in a declarative statement rather than hearing it modelled in a question in their input.

Results from the study conducted by Theakston et al. (2003) show that verbs modelled in the input influence the likelihood that the language learner will produce appropriately inflected third person verbal forms in finite contexts with novel verbs. Although the present study does not contain novel verbs, it is still possible to see if verbs that are modelled in the input are likely to be produced in the appropriate finite context by the subjects in the study. Such a finding would provide support for a constructivist, input-driven approach. For this analysis, the data from SAR was excluded, as she is considered to have mastered the morpheme, based on Jia and Fuse's (2007) criteria. The other four subjects were considered to exhibit some degree of optionality in the verbal inflection of the third person singular [-s] morpheme. There are five occasions in the study where input could have aided the learner's verbal inflections (6). (Utterances coded with NMK identify the investigator's speech). There are three occasions in the study where the utterance contains a non-finite verb, following a question from the investigator, where the verb in the question is in non-finite form (7). However, there are nine cases in the study where the subject does not use the verbal inflection which was modelled in the preceding sentence (8). In 8 a-h, there is no evidence that subjects use input to aid them with verbal inflections. In 8 a-c, the investigator asks a question with the verb occurring in either finite or non-finite form. However, the subject answers the question using a form other than the form that has occurred in the preceding utterance. In 8 d-h, the verb appears in non-finite form in the investigator's question. However, the subject answers the question with the appropriate finite form, suggesting that the subjects can go beyond the input and produce verbs inflected with the [-s] morpheme, where the verb had been unmarked in the input. Although there are only 17 cases in the corpus where the input could have been used by the subject to aid in the verbal inflection process, this only happens on five occasions, and on one of these occasions, HIC actually corrects himself by replacing the obligatory finite form, *brings*, with the inappropriate non-finite, *bring*.

(6) NMK: she brings which?
    HIC: brings [//] bring a page because color. [1]

    NMK: it's in your bed, he sleeps in your bed?

HIC: no, he sleeps his bed. [2]

NMK: it eats some of the tree, it does.
HIC: yeah and eats that one the grass one. [4]

NMK: you told me he drives his car very fast
ELV: one he drives /fift:y [4]
      [however, *drives* occurs prior to this in ELV's speech]

NMK: you do know where she works, (be)cause it's +/
AME: eh she [/] <she works> [>] in the airplane [6]

(7) NMK: and when does your daddy use it?
    HIC: ehm use it in his shop. [5]

  NMK: and does your brother play with your play + station?
  AND: no him play with something fight [1]

NMK: where does he teach?
AME: he teach in xxx ehm D_C_U. [3]

(8) a. NMK: she likes the baby and this [/] this boy?
    HIC: and that boy he is like the dinosaur play. [1]

  b. NMK: and does he eat anything apart from carrots?
    HIC: yeah.
    NMK: what?
    HIC: he is eat all the carrots. [2]

  c. NMK: he eats all ten?
    HIC: yeah, eat all, eat all his lunch like that. [5]

  d. NMK: does your mummy tell you that story?
    AND: no my daddy tells me that. [2]

  e. NMK: yeah and does he like Superman?
    ELV: yeah he likes Superman.[1]
    NMK: what else does he like?
    ELV: he likes Batman. [1]

  f. NMK: what does he want?
    ELV: he wants to eat. [2]

  g. NMK: and does your friend live nearby?
    ELV: no <he lives> [/] he lives beside me. [8]

  h. NMK: and does she look happy or sad?
    ELV: sad, <she looks> [/] she looks like a girl.

Results from the study conducted by Theakston et al. (2003) suggest that language learners initially learn to inflect verbs with the third person [-s] morpheme on a verb-by-verb basis, a fact supported by results from an earlier study conducted by Bloom,

Lifter and Hafitz (1980). The latter study suggested that children learn inflected forms as separate lexical items, when the verbal inflections are initially emerging, but before they are acquired. In addition, Theakston et al. (2003) claim within the constructivist, input-driven approach, it can be predicted that an early language learner may demonstrate some generalisation of unfamiliar verbs in their use of third person marking if they have already begun to develop more abstract constructions that support a degree of linguistic productivity and have some knowledge about the linguistic environment in which the verb will occur.

A further finding of Theakston, Lieven and Tomasello's study is based the formation of questions in the third person singular, where there is evidence that children drop the third person [-s] morpheme when asking a question, demonstrating that [-s] is an uninflected morpheme rather than part of the word's phonology. Examples of question formation from the data are illustrated below (9). There are only four occasions in the current study where the third person singular occurs in a question uttered by the subject, which is too small a sample to form any conclusion.

(9) ELV: I'll ask him what does he want [4]
     ELV: did he buy a girl or a boy? [5]
     SAR: does it go here? [6]
     SAR: why does it keep on falling? [5]

Findings from Theakston et al. (2003) suggest that children learn to produce third person singular [-s] and unmarked verb forms on a verb-by-verb basis, consistent with the constructivist input-based account of early verbs use. However, as will be seen from discussions in the following section, there is no evidence in the current study to support this.

8.6 The Missing Agreement Account and the Implicit Rule Deficit Account
The Missing Agreement Account (Clahsen, 1989) and the Implicit Rule Deficit Account (Gopnik & Goad, 1997) are two models which have been put forward to account for the use of non-finite forms in obligatory finite contexts in language produced by language-impaired children. One assumption made by both of these models is that correct inflections are primarily the result of rote memorisation of inflected forms.

In their study of children with a specific language impairment, Clahsen and Hansen (1993) test two assumptions on the mechanism for correct production of finite verb forms, one being that language learners do not have a general paradigm for number and person inflection and the other being that finite verb forms are memorised on a verb-by-verb basis. Applying these assumptions, analysis of utterances produced by a language learner should yield two mutually exclusive verb lists, those correctly inflected in finite form and those that are only produced as non-finite verb forms. However, Miller and Leonard (1998) observed that the use of the third person [-s] morpheme was inconsistent in their application of the inflection with the same verb and therefore not attributable to lexically-based factors. They showed that most verbs were produced both with and without the [-s] inflection in contexts requiring this inflection, with the verb *see* being produced as *she sees me* and *she see it*, ruling out the notion that children tend to learn inflected words as unanalysed lexical items to be used in particular contexts

To test this notion and to see if it applies to the current study, following Miller and Leonard (1998), each verb that occurred at least twice in the corpus for each subject was assigned to one of three categories: *always correct*, for verb types that are always correctly inflected; *never correct*, for verb forms that are never correctly inflected; and *sometimes correct / sometimes incorrect*, for verb forms that are produced at least once without inflection and once with inflection. If language learners tended to learn inflected words as unanalysed lexical items, it would be expected that no verb would be assigned to the *sometimes correct / sometimes incorrect* category. As is evident from Tables 8.3-8.7, which shows the number of lexical items which were assigned to the three categories, according to Miller and Leonard's classification, each subject had lexical items in the *sometimes correct / sometimes incorrect* category, posing challenges for both the Missing Agreement Account and the Implicit Rule Deficit Account. Although SAR has only one lexical item that fits this category, all other subjects display a higher number of verbs assigned to this class, although generally this category is lower in number than the other two categories. A sample of such cases is illustrated in (10). It is worth noting that items that are assigned to this category cluster together at a particular stage in the longitudinal study, with this happening

during the first three cycles in AND's data, in the middle cycles in HIC and AME's data and during cycle four in ELV's data.

(10) SAR: he startests to eat [4]
    SAR: when you shout at her she starts to cry [4]

    AND: he run faster [1]
    AND: if the cat runs [1]
    AND: yes, I know, my daddy knows, my granny knows [1]
    AND: my brother know English and Romania [1]

    ELV: he drives faster [4]
    ELV: my mam drive sixty sometimes [4]
    ELV: my dad always drink all of that stuff [4]
    ELV: yeah, my dad drinks [4]

    AME: she looks like a girl 4/
    AME: it look like a girl 4/

    HIC: he looks somebody's ball in there [1]
    HIC: and he look at the house [1]

Table 8.3: Breakdown of each lexical item occurring as a single token, or sometimes correct / sometimes incorrect, always correct or never correct in third person singular context

Cycle	1 token only	Sometimes correct	Always correct	Never correct
HIC1	3	0	0	3
HIC2	5	0	0	3
HIC3	4	0	0	0
HIC4	7	1	0	6
HIC5	14	1	0	5
HIC6	6	1	0	4
HIC7	6	0	0	2
HIC8	7	0	0	3

Table 8.4: Breakdown of each lexical item occurring as a single token, or sometimes correct / sometimes incorrect, always correct or never correct in third person singular context

Cycle	1 token only	Sometimes correct	Always correct	Never correct
AND1	6	2	0	6
AND2	6	3	0	5
AND3	5	2	1	6
AND4	7	0	0	2
AND5	1	0	1	0
AND6	2	0	0	0

Table 8.5: Breakdown of each lexical item occurring as a single token, or sometimes correct / sometimes incorrect, always correct or never correct in third person singular context

Cycle	1 token only	Sometimes correct	Always correct	Never correct
ELV1	2	0	2	0
ELV2	5	0	2	1
ELV3	4	0	1	0
ELV4	8	3	2	0
ELV5	3	0	0	0
ELV6	3	0	0	0
ELV7	4	0	0	0
ELV8	5	0	2	0

Table 8.6: Breakdown of each lexical item occurring as a single token, or sometimes correct / sometimes incorrect, always correct or never correct in third person singular context

Cycle	1 token only	Sometimes correct	Always correct	Never correct
AME1	6	0	2	0
AME2	2	0	1	0
AME3	8	1	0	1
AME4	6	2	0	0
AME5	5	1	2	0
AME6	7	0	0	0
AME7	4	0	0	0
AME8	3	0	0	0

Table 8.7: Breakdown of each lexical item occurring as a single token, or sometimes correct / sometimes incorrect, always correct or never correct in third person singular context

Cycle	1 token only	Sometimes correct	Always correct	Never correct
SAR1	7	0	0	0
SAR2	3	0	1	0
SAR3	9	0	3	0
SAR4	6	1	4	0
SAR5	6	0	2	0
SAR6	1	0	1	0
SAR7	0	0	0	0
SAR8	3	0	0	0
SAR9	6	0	0	0

In their study of the irregular past tense, however, Marcus et al. (1992) point out that errors resulting from memory retrieval failure can occur. This might account for inflected verbal forms that have been memorised being produced without the

necessary inflection. However, such retrieval errors would only account for 4.2% of occasions where the necessary past-tense inflection was not produced (Marcus et al., 1992). Miller and Leonard (1998), basing their study on word types, rather than word tokens, put this figure at 10.5% for the third person singular inflection. Retrieval errors for this morpheme would result in the production of the non-finite form of the verb in an obligatory finite context. Based on Miller and Leonard's figure of 10.5%, retrieval errors might be able to explain the number of lexical items assigned to the *sometimes correct* category for two of the subjects in this study, with the *sometimes correct* category equivalent to 7%, 5% and 9% in the case of the relevant three cycles of HIC's data, and 9% for the relevant cycle of SAR's data, the number of lexical items assigned to the *sometimes correct* category for AND, AME and ELV is too high to be explained by memory retrieval failure. For the relevant three cycles in AND's data, 14%, 21% and 14% of items are assigned to the *sometimes correct* category. For AME, the figures are 10%, 25% and 13%. There is only one cycle in ELV's data that had a *sometimes correct* category, and this figure is 23%.

Therefore, as all five subjects have lexical items in this category, and as memory retrieval failure can not explain the errors in three of the five subjects, it can therefore be concluded that evidence from this study does not support the Missing Agreement Account and the Implicit Rule Deficit Account.

8.7 Overgeneration of *be* forms

Finally, there is one further structure which features in the data, and is particularly prominent in the data of HIC and AND which deserves a mention, and that is the use of phrases such as *he's come*, *Nia is reads the story* and *the sun is help Superman to get powers*. Studies on the speech produced by children learning English as an L2 conducted by Ionin and Wexler (2002) and Garcia Mayo et al. (2005) made similar observations that their subjects produced the construction *be + bare V* in utterances such as *I'm read* or *I'm buy beanie baby*. This construction is used with a wide range of meanings, and is often used in utterances that contain an uninflected verb in place of a progressive participle, as in *is come*, *is go*, and initially, it might appear as if the overgeneration of *be* is used by the L2 learners in this study to express the progressive aspect. However, the vast majority of this type of utterance is not used to mark progressive aspect. Garcia Mayo et al. (2005) have also observed the occurrence of *be*

+ *bare V* in the language of early L2 learners of English. Ionin and Wexler (2002, p. 111) identified six possible intended meanings for this construction (11), however, only the progressive, generic and stative meanings are relevant to the current study.

(11) Progressive meaning
   Generic meaning
   Stative meaning
   Past tense meaning using stem form
   Past tense meaning using irregular past-tense form
   Future Meaning

Thirty nine cases of *be* + *verb* were observed in this corpus. There was one case that was ambiguous in meaning, and was not classified. Of the remaining 38 cases, 14 (37%) with intended generic meaning, 22 (58%) with intended stative meaning and 2 (5%) with intended progressive meaning. For the three subjects ELV, SAR and AME, the overgeneration of *be* is almost insignificant

However, for subjects HIC and AND, the overgeneration of *be* in a third person singular context is a frequent occurrence in the first half of the study, after which it rarely, if ever, occurs. Tables 7.2 and 7.5 in the previous chapter show the details of the overgeneration of *be* in contexts that require the third person [-s] singular morpheme, and the breakdown of the intended meaning of this overgeneration of *be*.

8.8 Conclusion
This chapter discussed a number of theories that have been put forward in the literature to account for the parallel use of both finite and non-finite verb forms in obligatory finite contexts. Evidence from the current study was used to see if the data supported or challenged the different theories in the field. For the impairment approach to hold through, subjects should create errors with both finite and non-finite verb forms. However, finite errors account for only 3% of errors, while non-finite errors account for 97% of errors, therefore presenting a challenge for the impairment explanation. Analysis of input where the verbal inflection is modelled by the investigator does not provide much support to argue in favour of the constructivist input-driven approach, although to truly test this model, experimentation using novel verbs would yield better results. The acquisition of verbal inflections on a verb-by-

verb basis, which has been put forward by both the input-driven approach and the Missing Agreement Account and the Implicit Rule Deficit Account, is challenged due to the large number of verbs which occur in both finite and non-finite forms in obligatory finite contexts. This leaves the OI hypothesis and the MSIH. Much of the evidence from the study is consistent with the OI hypothesis, although the small amount of evidence on null subject sentences and accusative pronouns weakens the argument slightly. The two hypotheses tested under the MSIH, namely the production of non-finite forms in place of finites and the absence or low occurrence of incorrect finiteness, would argue in favour of the MSIH, with incorrect finite errors accounting for only 3% of errors. This is in addition to the large body of evidence of where subjects used non-finite forms in place of finite forms.

This chapter discussed the acquisition of the third person singular [-s] morpheme, and in particular, the optional use of this inflection, where language learners alternate between saying *she wants one* and *she want one*. In their study of first language acquisition, Radford and Galasso (1998) posit that at the same time as this OI stage, children omit the genitive [-s] possessive marker, producing utterances such as *Mary's book* and *Mary book* and they question whether the children's sporadic omission of the genitive [-s] morpheme is related to their sporadic omission of the third person singular [-s] morpheme. In the chapter that follows, this issue will be explored to see if there is evidence from the current study to support Radford and Galasso's theory.

Chapter 9: The Acquisition of the possessive [-s] marker

9.1 Introduction

This chapter will investigate to see if evidence can be found from the current data to support the notion that the omission of the third person [-s] morpheme and the possessive [-s] morpheme happen at the same stage in the L2 acquisition process, as Radford and Galasso (1998) found in L1 acquisition. In addition, the issue of whether or not the sporadic omission of the two morphemes is related will also be investigated. Before looking at the trajectories for each subjects' acquisition of the possessive marker, a brief overview of the possessive structure and its acquisition process will be provided.

9.2 The acquisition process for the possessive [-s] morpheme

The concept of possession can be expressed as a verbal construction, using the verb *have* (*I have a new car*), and can also be expressed using the adnominal 'of' phrase, known as the periphrastic genitive (*the people of Ireland*). In addition to this verbal construction to mark the possessive, it can also be expressed using either a pronominal or nominal construction, as distinguished by Bernstein and Tortora (2005). The pronominal final [–s] of *his*, which will not be discussed in the current study, and the full-Determiner Phrase (DP) final [–s] of *Mary's*, a nominal possessive construction, where the possessor precedes the head noun and is inflected with the genitive [-s] morpheme, in productions such as *teacher's desk*

According to Cazden (1972), the process in acquiring the possessive [-s] morpheme follows a certain pattern. The first stage in the acquisition process sees the language learner juxtaposing the two words, with the possessor first and not inflected (*baby toy*). When the learner is acquiring the rule, the possessor will often be inflected with the [-s] morpheme, and the item possessed will be omitted (*baby's*). Otherwise it will be left uninflected. In the final stage in the acquisition process, the possessor will be correctly inflected with the [-s] morpheme, whether or not the possessed is mentioned.

9.3 Acquisition Trajectory for the five subjects

9.3.1 HIC

There are 18 obligatory contexts requiring the possessive [-s] marker in HIC's data. The morpheme is correctly supplied in 13 of these contexts (72%), a sample which is given in (1). The morpheme is omitted in five cases (2). In addition, there is one case where the morpheme is used inappropriately, where the possessive marker is attached to the nominative pronominal *she* (3). The nominal possessor is incompatible with the head noun determiner *a* or *the*, but there is one case in HIC's data where the determiner *the* occurs with the proper noun *Manish* (4). With an accuracy level of 72%, HIC is not considered to have mastered the possessive morpheme by the end of the study. Table 9.1 shows the breakdown of the number of obligatory contexts and the corresponding number of morphemes supplied for each cycle.

(1) HIC: and Esther's house [2]
    HIC: and the next day is my daddy's birthday [6]
    HIC: I see Martin's mam. [8]
    HIC: ehm in the glass is ehm granny's <glass> [//] ehm teeth [6]
    HIC: yeah and I jumped in my sister's bed [8]
    HIC: and my mam said you're not allowed get into Denis's bed. [8]

(2) HIC: because his daddy bicycle fell. [4]
    HIC: last night everyone come out and mam and dad's chairs. [7]
    HIC: my mam, it's like your hair color, it's like my mam color. [8]
    HIC: I'm catching <the> [/] the Manish green one. [8]
     HIC: my dad cakes. [8]

(3) HIC: yeah she playing with shes granny horse game. [7]

(4) HIC: I'm catching <the> [/] the Manish green one [8]

Table 9.1 Occurrence of Possessive [-s] in Obligatory Contexts									
	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8	Total
Obligatory Contexts	0	1	0	1	1	3	3	9	18
Morpheme Supplied	0	1	0	0	1	3	2	6	13

9.3.2 AND

There are eleven obligatory cases that require inflection with the possessive [-s] morpheme in AND's data, of which only three (27%) are correctly inflected with the

morpheme (5). The morpheme is omitted on eight occasions (73%), all of which are illustrated in (6). In cycle five, there is an example where the morpheme is both supplied and omitted in identical environments (7). Similarly in cycle two, *daddy* is correctly inflected with the morpheme, while *mommy* and *big friend* are not inflected, despite occurring in a lexically similar environment (8). With an accuracy level of only 23%, AND has not yet mastered the possessive morpheme. Table 9.2 gives details of the number of obligatory contexts and the number of occasions that the morpheme is supplied for each cycle.

(5) AND: he taken the flower's honey [1]
    AND: now it's it was my daddy's birthday [2]
    AND: not my granny's house, my house [5]

(6) AND: no, only granny house. [1]
    AND: and the story name is monsters [1]
    AND: and now is was my brother birthday [2]
    AND: and now it was my mommy birthday and then it was my big friend
         Birthday [2]
    AND: and take the little boy cookie [3]
    AND: my granny house [5]
    AND: oh it's my mummy car [5]

(7) AND: my granny house [5]
    AND: not my granny's house, my house [5]

(8) AND: now it's it was my daddy's birthday and now it was my mommy birthday
         and then it was my big friend birthday [2]

Table 9.2 Occurrence of Possessive [-s] in Obligatory Contexts							
	AND1	AND2	AND3	AND4	AND5	AND6	Total
Obligatory Contexts	3	4	1	0	3	0	11
Morpheme Supplied	1	1	0	0	1	0	3

9.3.3 ELV

There are 28 obligatory contexts in ELV's data requiring the possessive [-s] morpheme. The morpheme is correctly supplied in 26 of these contexts (93%), a sample of which is given in (9). The morpheme is omitted on two occasions (10). With an accuracy level of 93%, it can be said that ELV has mastered the possessive morpheme [-s]. Table 9.3 shows the breakdown of the number of obligatory contexts and the corresponding number of morphemes supplied for each cycle.

(9) ELV: Tony's big brother's school [2]
   ELV: he put them my mam's one and he drived on my mam's one [4]
   ELV: my friend's sister wasn't sleeping and me, I wasn't even. [4]
   ELV: but my <dad> [//] dad's car doesn't go seventy, only sixty. [4]
   ELV: my mam was there too in somebody's house [4]

(10) ELV: first it's going to my mam and then mine and then my dad's. [1]
   ELV: and I bashed into my brother bike [4]

Table 9.3 Occurrence of Possessive [-s] in Obligatory Contexts									
	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Total
Obligatory Contexts	5	6	2	10	0	0	1	4	28
Morpheme Supplied	4	6	2	9	0	0	1	4	26

9.3.4 AME

There are twenty obligatory contexts that require inflection with the possessive [-s] marker. The marker is supplied in 18 contexts (90%), a sample of which are given in (11). The morpheme is omitted on two occasions (12). As AME has correctly supplied the morpheme in 90% of obligatory contexts, he has mastered the possessive [-s] morpheme. Table 9.4 gives the number of obligatory possessive contexts and the number of morphemes supplied in each context.

(11) AME: It was Sam's birthday [2]
   AME: there was a great celebration in my uncle's house [5]
   AME: will I tell you ehm my brother's name? [7]
   AME: she puts them in ehh the principal's office [4]
   AME: Jason's mum is not my mum [1]
   AME: Tommy's playing with Jackie's truck [2]
   AME: ehm my mum's brother [3]

(12) AME: oh and she cuts people hair [3]
   AME: that's the girl part and this is the boy's part [6]

Table 9.4 Occurrence of Possessive [-s] in Obligatory Contexts									
	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8	Tot.
Obligatory Context	5	4	4	1	1	2	2	1	20
Morpheme Supplied	5	4	3	1	1	1	2	1	18

9.3.5 SAR

There are sixteen obligatory possessive [-s] contexts in SAR's data, all of which are correctly inflected with the morpheme. A sample of SAR's utterances containing the

possessive [-s] marker are given in (13). With no omission or commission errors, SAR has mastered the possessive morpheme, with an accuracy level of 100%. Table 9.5 outlines the number of obligatory cases for the possessive morpheme and the corresponding number of morphemes supplied for each cycle.

(13) SAR: eh, it's a woman's name. [5]
SAR: so eh I went to my uncle's house to have a sleepover [6]
SAR: yeah but today in Manish's class there's a girl's birthday, Aoife's birthday [6]
SAR: I clean ehm with my mam's hoover [4]
SAR: she likes working like my dad's phone [4]
SAR: okay and she checks somebody's body [5]
SAR: suddenly Jack was hiding in [/] in the money's part [4]

Table 9.5 Occurrence of Possessive [-s] in Obligatory Contexts									
	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9	Total
Obligatory Contexts	0	2	0	3	2	5	0	1	3	16
Morpheme Supplied	0	2	0	3	2	5	0	1	3	16

9.4 Discussion

Using evidence from a longitudinal study carried out by Joseph Galasso on his son Nicholas, Radford and Galasso (1998) and Radford (1999) suggest a potential parallel between children's sporadic omission of the third person singular morpheme and their omission of the possessive [-s] marker, with both morphemes emerging at a similar stage in L1 acquisition. Other researchers who have made a link between the genitive and third person singular [-s] are den Dikken (1998, 1999), Kayne (1993) and Berstein and Tortora (2005). den Dikken (1998, 1999) takes the view that the [-s] in *Mary's book* is the third person singular form of the copula *be*, while Bernstein and Tortora (2005) follow Kayne (1993) and suggest that the [-s] of *Mary's book* is a (non-copular) singular number marker similar to that found in the verbal domain *she eats*.

Table 9.6 shows the relative frequency of use of both morphemes for each subject in the current study. As the number of possessive tokens in each cycle was so low, it was not possible to work out a percentage accuracy figure for each cycle. However, an overall percentage accuracy figure was calculated based on the total number of tokens correctly inflected with the possessive morpheme for a particular subject. This figure is then compared with the corresponding figure relating to the third person singular [-

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s] morpheme. There is a significant difference in the occurrence of the third person [-s] morpheme and the possessive [-s] morpheme for HIC's data, challenging Radford and Galasso's (1998) L1 findings that there is evidence of a relation between the acquisition of the two morphemes. Evidence from the remaining four subjects would suggest that while the acquisition of both morphemes occur at a similar stage, the possessive [-s] is acquired slightly ahead of the third person [-s]. This is consistent with Brown's (1973) L1 study and Dulay and Burt's (1973) L2 study which found that the acquisition of the genitive [-s] morpheme precedes the acquisition of the third person singular [-s] morpheme. The results also reflect findings made by Di Domenica and Bennati (2007) when they observed that the [-s] morpheme is present in a high percentage of cases where the third person singular [-s] is missing.

Table 9.6 Occurrence in Obligatory Contexts		
Cycle	3rd person singular [-s]	Possessive [-s]
HIC	8%	72%
AND	17%	27%
ELV	74%	93%
AME	75%	90%
SAR	94%	100%

If, as the data would suggest for the remaining four subjects, there is a potential parallel between the acquisition of the two morphemes, there should be some reason to explain this. In addition to pointing out the morphological similarities between the two morphemes, Radford and Galasso (1998) also draw on the potential syntactic parallels.

Radford and Galasso (1998) describe the acquisition of the genitive possessive [-s] and the third person singular [-s] as a three stage process. In the first stage, agreement is not marked and subjects and possessors carry default objective marking, with the necessary [-s] morphemes omitted, resulting in such utterances as *him eat* and *him hand*. They explain the default objective marking by suggesting that the genitive case of possessive constructions and the nominative case of verbal constructions are checked with a nominal and verbal inflectional head respectively, with the objective case acting as the default in structures that lack agreement. The shift from objective possessors to genitive possessors and the shift from objective subjects to nominative subjects reflects a parallel change from a subject underspecified for subject /

possessor agreement, to a structure fully specified for agreement features. In the second stage, there is optional agreement marking. If agreement is marked, subjects will carry nominative case and verbs will be inflected with the [-s] morpheme in the case of third person singular verbal constructions. If agreement is not marked, utterances that occur in the initial stage will be produced. Likewise, for utterances containing possessive constructions, if agreement is marked, possessors will be marked with the genitive case and carry the possessive [-s] inflection. Otherwise, initial stage utterances will be produced. In the third and final stage in the acquisition process, agreement will be marked and verbal constructions will carry nominative case and the verb will be inflected with the third person [-s] morpheme and possessive constructions will carry genitive case and the necessary [-s] possessive inflection.

One view that Radford and Galasso (1998) pursue is the notion that possessors in nominal / pronominal clauses and subjects in verbal clauses show a similar pattern of development. There is only one utterance in HIC's data where the pronominal possessor is marked by the objective case (13) and there is no instance of the third person singular marked by the objective. In the current study, AND is the only subject that uses the objective case *him* in both third person singular verbal constructions and possessive structures, an example of which are shown in (14a) and (14b) respectively. However, while 22% of utterances produced by AND with third person singular subjects have objective *him* subjects, a staggering 99% of pronominal possessive structures take the objective *him* possessor in the form of *him + noun*. Only 1% has a genitive *his* possessor. These figures do not reflect the L1 findings of Radford and Galasso (1998), where the figures are virtually identical, at 78% and 77% respectively. From cycle four, AND makes the shift from objective subjects to nominative subjects in third person singular verbal utterances, however, a similar shift is not evident in the case of possessive, with objective possessors dominating throughout the whole study. It can be concluded from evidence from AND's data, that possessors and subjects do not show a similar pattern of development, presenting a challenge for Radford and Galasso's notion. Findings from AND's data are consistent with the view expressed by Galasso (2004), following Kayne (1993), who grants the possessive [-s] structure the status of a possessor-agreement inflection, just as a verbal inflection has the status of subject-verb agreement inflection. He explains that at an early stage of syntactic development, the head of INFL goes unspecified for both nominal (genitive) and

verbal (subject) INFL heads in accordance with (15), however, this is only the case in the first four cycles, after which, verbal projections appear to be fully specified, while possessive projections still remain underspecified for the remainder of the study. As the remaining three subjects in the study, AME, ELV and SAR, are considered to have acquired the morpheme, their data was not analysed here.

(13) HIC: and give him mommy chicken [4]

(14a)AND: but him know Irish [1]
   AND: him see a monster and him run back [1]
   AND: him go to the next door [2]
   AND: and then him take him [3]
   AND: and him say stop [3]

(14b) AND: and the cat it was really happy with him girl and with him mammy and
             with him boy and with him daddy [2]
   AND: he was have to find him key [2]
   AND: and him wings [6]
   AND: no will know him name [6]
   AND: and him friend [6]
   AND: he ripped him jacket [3]
   AND: he got a sword in him hand [6]

(15) Possessive projections, which rely on an AGReement relation with a nominal
     INFL, must default to an objective case;
     Verb projections are limited to VPs without INFLection;
     Subjects, which rely on an AGReement with a verbal INFL, must default to
     having an objective case

                                                        Galasso (2004, p. 100)

Another shortcoming of Radford and Galasso's (1998) study and Galasso (2004) is in their analysis of third person singular [-s]. While their discussions are centred on the parallels between the third person [-s] and the possessive [-s], in fact. they only focus on contracted copular sentences, regarding the contracted 's form of the auxiliary *is* as a third person [-s] morpheme, and therefore do not make a distinction between utterances such as *Pat runs* and *Pat's coughing*. As a result, throughout their study, utterances such as *Pat's cough* and *Pat's coughing* are compared, while verbs which are inflected with the [-s] morpheme in cases such as *Pat coughs* are not discussed specifically.

9.5 Conclusion

This chapter looked at the acquisition trajectory for the possessive [-s] genitive marker and investigated claims made in the literature that there is a potential parallel between the omission of the possessive [-s] marker and the omission of the third person [-s] morpheme. Investigating the occurrence of each morpheme in an appropriate context reveals that, for four of the five subjects, there does appear to be some similarity between the acquisition of both morphemes, with the acquisition of the genitive [-s] morpheme occurring slightly earlier than the third person [-s] morpheme. However, data from one subject would challenge this notion of similarity, by showing significant differences between the number of possessive morphemes supplied in obligatory contexts (8%) and the number of third person [-s] morphemes supplied in obligatory contexts (72%).

That the objective case is the default case in both nominal possessive projections and third person verbal projections has also been put forward in the literature. While there is evidence that the objective is the default case applied for both verbal and nominal projections in AND's data, objective case marking on verbal projections ceases in cycle four of the data, but remains a feature of nominal projections for the duration of the study, questioning the extent to which a parallel occurs between possessive and third person [-s] inflections.

Both this and the previous chapter have discussed morphemes that are considered to be acquired late in the acquisition stage, and as a result, are often referred to as late-system bridge and outsider morphemes. The present progressive [-ing] morpheme, which is one of the five morphemes under scrutiny in this study, is regarded as an early system morpheme and will be discussed in the next chapter.

Chapter 10: Findings and Discussion on the Acquisition of the Grammatical Morpheme [-ing]

10.1 Introduction

Previous chapters discussed two tense-related morphemes, the third person [-s] and the past [-ed] morpheme and two non-tense related morphemes, the plural [-s] and the possessive [-s] morphemes. This chapter will look at one further non-tense morpheme, that of the progressive aspect [-ing] marker, and investigate how the five subjects in this corpus-based study acquire the grammatical morpheme with respect to its function of marking the grammatical aspect of the verb with both present and past reference and its function as marker of future tense. In addition to the grammatical aspect of the verb, the role the [-ing] morpheme plays in marking the lexical aspect of the verb will also be explored. In order to see if there is evidence from the data that the use of the [-ing] morpheme is governed by the inherent lexical aspect of the verb, the lexical verb class in the data of each subject will be identified. In addition to looking at what stages of development are evident in the acquisition of the [-ing] morpheme, this chapter will also chart and compare the acquisition trajectories and level of mastery of the morpheme, by looking at its distributional pattern as it occurs in the interlanguage of the five different subjects.

10.2 Grammatical Aspect of V-ing morpheme

This section explores the inflectional morpheme [-ing] from the viewpoint of how it is used to mark the grammatical aspect of the verb with both present and past tense reference and how it is used to mark future tense. The grammatical aspect of a verb is a system for classifying utterances according to the viewpoint of the listener (Smith, 1997) and is determined by inflectional morphology. The progressive aspect is expressed by the syntactic construction of the auxiliary verb *be* and the present participle of the main verb (Lee, 2007). It indicates a happening in progress at a given time (Quirk et al., 1985, p. 187), with the focus being on the unfolding of the event. The progressive aspect can be expressed in the present (e.g. *I am reading a book*), where the projection generally refers to an event that is on-going at the time of speaking, examples from the current study are given in (1). In addition to marking present events, the [-ing] has several other secondary functions. The past progressive

form functions to indicate an overlap of one situation with another (*I was reading a book when the phone rang*), and consequently, is much more complex than simply the progressive form with past reference. In addition, the [-ing] can be used to mark future reference, in projections such as *I am going to Paris next week.* Examples from the current study are illustrated in (2). In future events, the [-ing] morpheme can also occur in the periphrastic structure such as *I am going to watch a movie.* Finally, the present participle [-ing] can have adjectival and nominal characteristics, examples of which from the current study are given in (3).

(1) AME: you're wrecking my picture [6]
     AME: what are you doing? [6]
     SAR: the mommy is holding the baby [2]
     SAR: Tony's crying, can you hear Tony crying? [5]

(2) SAR: when I'm big <I'm going to ehm> [//] <I'm going> [/] I'm going to India [5]
     SAR: he going tomorrow [7]
     ELV: are you going to Lidl today? [4]

(3) AND: one baby's not scaring for a vampire [1]
     AME: that's a swimming turtle [1]
     AME: these are swimming animals [1]
     AME: a fighting cow [1]
     ELV: bore learning [7]
     SAR: that is for singing [3]
     SAR: this is for measuring [3]

All [-ing] tokens in the corpus of each subject were identified using the KWAL command from CLAN and, in addition, a further inspection of the hard copy of the data was conducted. All extracted [-ing] tokens were analysed and coded according to whether they refer to present tense events, past progressive events, future events or had adjectival, conditional or nominal characteristics. Future and past events were further coded for future time reference events or structures that contained the periphrastic structure *going to V*. To maintain methodological rigour, incidences where the time reference was difficult to decipher and where the [-ing] was preceded or succeeded by unintelligible speech were omitted from the count. Table 10.1 illustrates the function of all occurrences of the [-ing] morpheme for each individual subject.

Table 10.1 Token count of function of [-ing] occurrences for each subject						
	HIC	AND	ELV	AME	SAR	TOTAL
Present	175	71	48	77	87	458
Past	16	78	44	40	36	214
Future	14	1	33	18	21	87
Periphrastic Future	0	2	56	28	29	115
Periphrastic Past	0	0	2	2	1	5
Nominal	8	4	4	3	6	25
Adjectival	0	2	2	8	0	12
Conditional	0	2	2	2	0	6
Total no. of tokens	213	160	191	178	180	922

However, for the purpose of analysing the subjects' use of the [-ing] morpheme, only [-ing] morphemes with present, future and past tense reference are included for analysis. Periphrastic future and periphrastic past structures are excluded from analysis, as are nominal, adjectival and conditional [-ing] phrases. For the remaining discussion on the [-ing] morpheme, all percentages will be based solely on the total number of present, past or future utterances that contain [-ing] structures.

As illustrated in Table 10.2, out of the total number of present, past and future progressive [-ing] tokens produced by the five subjects in this study, 60% marks present reference, 28 % marks past reference and 12% marks future reference, somewhat confirming the general order of emergence of the progressive [-ing] posited by previous studies:

> The input analysed ....show the expected scenario according to which the predominant use of the progressive is to mark ongoing events and actions in the present followed by marking future.
>
> (Rohde, 2008, p. 43)

However, while the predominant use of the progressive is to mark present tense events, consistent with Rohde (2008), results from this study reveal that following marking of present tense events, past tense events are more frequently marked than future tense events (Table 10.2).

The data also confirmed considerable variation at the level of the individual. Subjects HIC and AND rarely use [-ing] to mark future reference. In fact, AND, apart from

four occasions in cycle 4, does not use the [-ing] for future reference at all. From the analysis, it can be said that the higher the proficiency level of the subject, the more likely it is that the progressive [-ing] is spread more evenly across events with present, past and future reference (Table 10.2).

Table 10.2 Use of the progressive [-ing] for all five subjects						
	HIC	AND	ELV	AME	SAR	Total
Present	85%	47%	38%	57%	60%	60%
Past	8%	52%	35%	30%	25%	28%
Future	7%	1%	27%	13%	15%	12%
	100%	100%	100%	100%	100%	100%

If the function of [-ing] is examined across the length of the longitudinal study at the level of the individual, results broadly concur with that of Rohde (2008) who suggests that subjects show a preference for a particular function at specific periods of time during the study and considerable variation over the time of the study suggests that each function of the progressive is tackled separately. Tables 10.3 -10.7 display the use of the [-ing] morpheme across the length of the study for each individual. Examination of Table 10.7 would concur with that of Rohde, with SAR displaying preference for a particular function at different times throughout the period of the study. In cycle 2 and 3, preference is given to present time reference, in cycle 4, preference is for past tense reference and in cycle 7 and 9, future tense reference begins to feature more strongly. Across all eight recording cycles, subject HIC almost exclusively uses [-ing] when referring to events with a present tense reference. Its use as a past and future tense indicator only begins to emerge slowly towards the end of the study. Subject AND, on the other hand, initially uses [-ing] to mark past tense events and present tense events are marked by the [-ing] to a lesser extent. However, from half way through the study, the predominant use of the [-ing] morpheme is for present tense reference. During the first half of AME's cycles, use of the [-ing] is balanced between past and present tense reference, however, from cycles 6-8, [-ing] is predominantly used to mark present tense reference. ELV, similar to SAR, uses [-ing] to mark future reference towards the second half of the study and use of [-ing] is more evenly spread across past, present and future time reference.

Table 10.3: HIC (progressive *-ing*) %

recording cycle 1-8

Legend: pres prog, past prog, fut prog
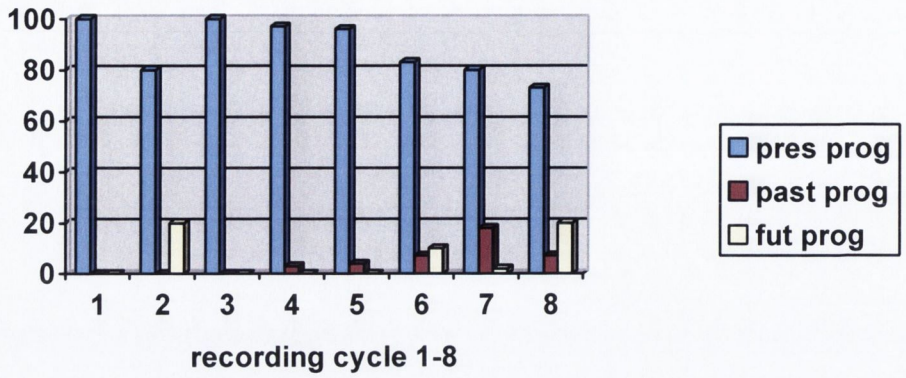
Table 10.4: AND (progressive *-ing*) %

recording cycle 1-6

Legend: pres prog, past prog, fut prog
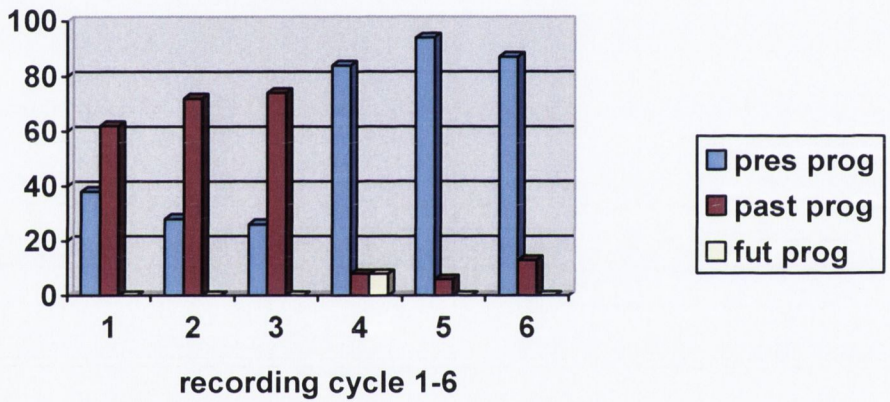
Table 10.5: ELV (progressive *-ing*) %

recording cycle 1-8

Legend: pres prog, past prog, fut prog
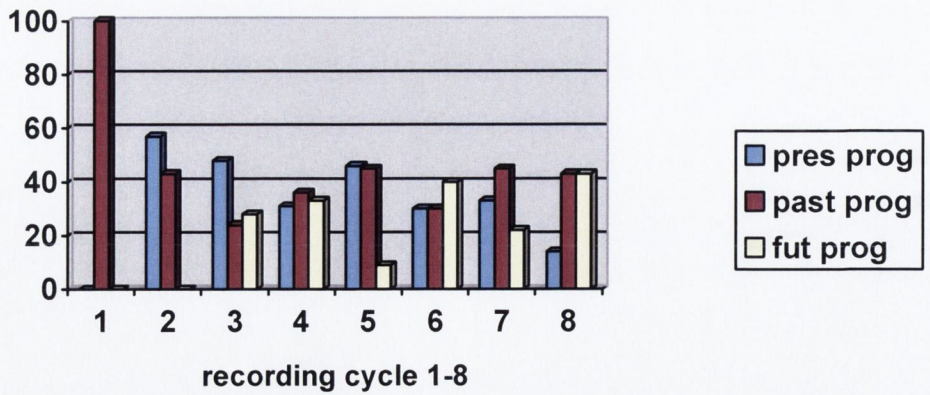
Table 10.6: AME (progressive *-ing*) %
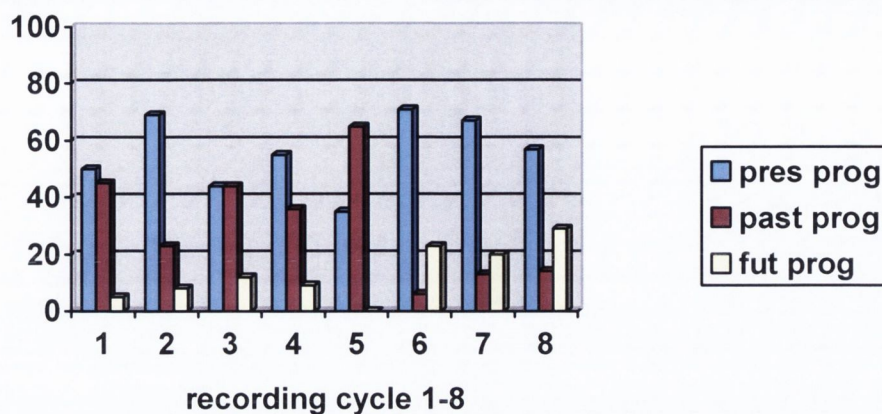
Table 10.7: SAR (progressive *-ing*) %
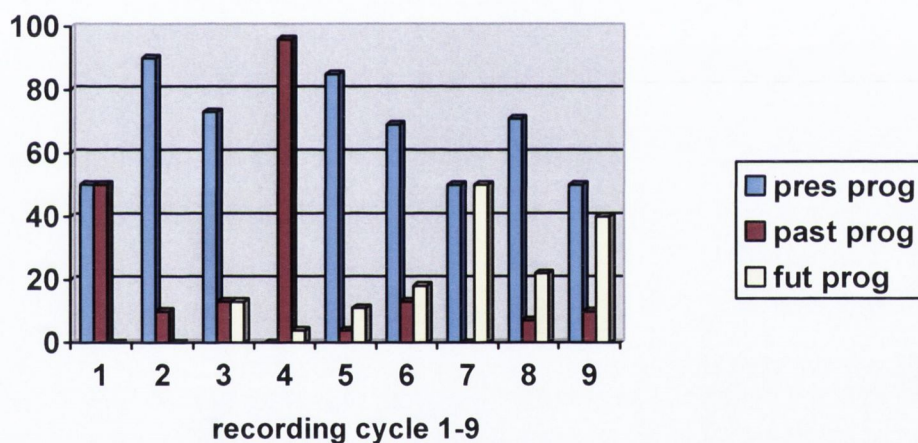
10.3 [-ing] morpheme in an obligatory context

All transcripts were analysed for the use of the present participle [-ing] in target-like and non-target-like contexts. The obligatory cases for the [-ing] morpheme were identified and recorded as either being supplied in a target-like context or supplied but not in a target-like context. As in previous cases, utterances that were ambiguous, contained unintelligible speech or were followed by spontaneous self-correction or self-repetition were not counted. Following Jia and Fuse (2007, p. 1286) if, in a given session, a participant produced fewer than five obligatory contexts for the [-ing] morpheme, the data from that session was omitted from analyses. In the corpus, all sessions contained five or more cases of the morpheme. The data was analysed in

accordance with the criteria outlined above in order to obtain the acquisition profile for the grammatical morpheme [-ing].

Table 10.8 illustrates the percentage of [-ing] that was uttered in what was considered target-like contexts for each subject. The figure in parentheses shows the total number of past, future and present [-ing] tokens in each recording session. If mastery of a morpheme is defined as over 80% correct use of the morpheme in obligatory contexts across three consecutive recordings where there are at least five usages in each sample (Jia and Fuse, 2007), subjects who have mastered the [–ing] morpheme can be identified.

Progressive [-ing] was mastered by AME at cycle seven, and by ELV and SAR at cycle six. However, SAR shows regression in her mastery of the morpheme on the final recording session, regressing to 64% having previously maintained a level of mastery of over 80% for five consecutive recording sessions respectively. With the acquisition criteria set at 80%, subjects AND and HIC do not achieve mastery of the structure at any stage in the study. However, as will be discussed in the following section, there is evidence for both AND and HIC that the [–ing] morpheme has emerged.

Table 10.8: % of correct uses of [-ing] in an obligatory context Figure in parenthesis represents the total number of samples per cycle								
	Cycle1	Cycle2	Cycle3	Cycle4	Cycle5	Cycle6	Cycle7	Cycle8	Cycle9
HIC	75%	40%	83%	61%	54%	41%	50%	66%	
	(8)	(5)	(6)	(36)	(28)	(29)	(49)	(44)	
AND	71%	72%	84%	66%	66%	80%			
	(45)	(25)	(38)	(12)	(15)	(15)			
ELV	100%	86%	62%	88%	91%	100%	89%	86%	
	(5)	(21)	(29)	(33)	(11)	(10)	(9)	(7)	
AME	68%	77%	89%	73%	85%	90%	87%	86%	
	(22)	(13)	(9)	(11)	(20)	(31)	(15)	(14)	
SAR	80%	91%	65%	81%	93%	91%	80%	94%	64%
	(8)	(21)	(15)	(24)	(26)	(16)	(10)	(14)	(10)

10.4 Acquisition Trajectory for each subject

10.4.1 HIC

The [-ing] morpheme occurs a total of 205 times with 52 different verbs in HIC's data, 28 of which are irregular verbs and 24 are regular verbs. Out of the 205 [-ing] tokens, 123 tokens are instances of irregular verbs and 82 are regular verbs. The verb which occurs with the greatest frequency is *play* (30 tokens), followed by *go* (22 tokens), *get* (21 tokens), *say* (11 tokens), *do* (10 tokens), *walk* (9 tokens) and *come* (7 tokens). An increase in the use of [-ing] can be seen across each recording cycle, ranging from 8 tokens in cycle one, to 44 tokens in cycle 8 (Table 10.9).

Table 10.9 **Number of V[-ing] tokens in each recording cycle**								
	HIC1	**HIC2**	**HIC3**	**HIC4**	**HIC5**	**HIC6**	**HIC7**	**HIC8**	**Total**
Tokens	8	5	6	36	28	29	49	44	**205**

As the [-ing] morpheme has appeared in five different lexical contexts in cycle one, and with eleven tokens, [-ing] can be viewed as having emerged in HIC's data in cycle one (Zhang, 2004). Applying Palotti's (2007) criteria, out of the five verbs that are inflected with the [-ing] morpheme, minimal pairs exist for the verbs *play*, *go* and *look*. *Play* occurs four times with the [-ing] morpheme in cycle one, and occurs once in cycle one as the uninflected base form of the verb. *Go* appears once inflected with the [-ing] morpheme, and in the same cycle, occurs 4 times uninflected. Similarly, *look* appears once with the [-ing] morpheme and once as the uninflected base form. These uninflected forms, shown in (4), provide some evidence that a V + [-ing] rule for progressive formation is in operation. There is no evidence of morphological minimal pairs for the verbs *read* and *hold*, both of which appear as V + [-ing] in cycle one.

(4) *HIC: he is like the dinosaur **play** [1]
    *HIC: he is **go** in the garden [1]
    *HIC: my sister **go** in the school [1]
    *HIC: he start to **go** away [1]
    *HIC: two girls **go** in the hospital [1]
    *HIC: and **look** at the man fell off [1]

There is no evidence of either creative construction or high lexical variety in cycle one of HIC's data. In cycle two, however, there is evidence of lexical variety (5).

(5) *HIC: **sleeping** himself in his bed [2]
    *HIC: he **sleeps** [2]
    *HIC: he's not **sleep** me [2]

The structure V + [-ing] occurs without the auxiliary in 56 out of 156 cases where an auxiliary is required. A sample of such instances is shown in (6). Table 10.10 illustrates the suppliance or omission of the auxiliary verb across all recording sessions for HIC. The auxiliary occurs in both full and clitized form from cycle one.

(6) *HIC: mam reading the book [1]
    *HIC: and that baby looking [1]
    *HIC: he sleeping in his bed [4]
    *HIC: and these getting that one [4]
    *HIC: I going in my house [4]
    *HIC: what you doing in that house [5]
    *HIC: he playing with a kite [5]
    *HIC: he licking his bellies [6]
    *HIC: he getting babies [7]
    *HIC: we playing [8]

Table 10.10 Suppliance of auxiliary with progressive [-ing]								
	HIC1	HIC2	HIC3	HIC4	HIC5	HIC6	HIC7	HIC8	Total
[-ing] requiring auxiliary	5	3	1	30	21	23	42	31	**156**
Auxiliary supplied	3	3	1	25	9	11	27	21	**100**
Incorrect auxiliary supplied	0	0	0	0	0	0	3	0	**3**

There is evidence of the [-ing] morpheme being over-extended in (7). Instances of incorrect word-order are seen in (8). The [-ing] morpheme occurs nine times in the data with the negative (9), only three of which are target like in their use. The subject of the verb is omitted three times in cycle six, where it is not clear from the preceding context who the subject is (10) and in cycle seven, the incorrect pronoun *them* appears with the V + [-ing] on five occasions (11).

(7) *HIC: I'll do one jumping [6]
    *HIC: don't getting up [7]
    *HIC: boy liked raining, the duck liked raining [7]
    *HIC: I don't belly [: very] snoring [7]
    *HIC: I'm catching the [/] the Manish green one [8]
         [describing a game he played]
    *HIC: walking to the my house [8]

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[when asked how he goes home from school]
        *HIC: walking in the school [8]
        [when asked how he comes to school]

(8) *HIC: making a house is Bob the Builder [3]
        *HIC: watching I see my mam [7]
        [he saw his mum watching the concert]

(9) *HIC: he's no going [2]
        *HIC: I say we don't jumping [3]
        *HIC: friends not getting babies [6]
        *HIC: I'm not Irish dancing tomorrow [6]
        *HIC: don't getting up [7]
        *HIC: I'm not going [8]
        *HIC: he's not getting baby [8]
        *HIC: he's all days not getting baby [8]
        *HIC: pretend not he knowing [8]

(10) *HIC: is moving it, look [6]
        *HIC: and then doing song [6]
        *HIC: and getting something [6]

(11) *HIC: them watching television [7]
        *HIC: them playing here [7]
        *HIC: them getting up [7]
        *HIC: them going over rain [7]
        *HIC: them having milk [7]

10.4.2 AND

There are 150 [-ing] tokens in AND's data occurring with 51 different lexical items, 23 of which are regular verbs, and 28 of which are irregular verbs. The verb with the highest frequency is *do* (17 tokens), *try* has 13 tokens and *eat, go* and *play* each have 13 tokens and *get* has 7 tokens. The number of [-ing] tokens is very high for the first three cycles, when compared with the number of tokens in cycles three to six (Table 10.11).

Table 10.11							
Number of V[-ing] tokens in each recording cycle							
	AND1	AND2	AND3	AND4	AND5	AND6	Total
Tokens	45	25	38	12	15	15	150

Applying Zhang's (2004) criteria, there is evidence in cycle one that the [-ing] morpheme has emerged, with evidence of a high level of lexical variance, as there are a total of 45 tokens and 20 different lexical items which are morphologically inflected with [-ing]. Following Palotti (2007), there is also evidence of productive use of the

morpheme with the occurrence of minimal pairs (12). Over-use of the [-ing] morpheme can be found in (13), with evidence that a rule-formation process is in operation with the production of verbs such as *existing*.

(12) *AND: it's hard to **write** [1]
    *AND: **writing** [1]
    *AND: do **writing** to **write** animals [1]

    *AND: you can **move** [5]
    *AND: how you **moving** [1]

(13) *AND: I can speaking only yyy [1]
    *AND: I'm going in the everyday I'm going in the cinema [1]
    *AND: I was getting a game [1]
    *AND: because of [: if] you eating a lot of sweets the teeth give will broke [1]
    *AND: how was calling [1]
    *AND: everyday eating worms [2]
    *AND: I eating worms [2]
    *AND: Wintertime I not going [2]
    *AND: it's not existing [1]

AND frequently uses the incorrect pronoun (14). While there is only one token of the [-ing] morpheme used with the infinitive of a verb in cycle two (*I'm waiting to see the surprise*), this structure appears 13 times in cycle three (15). There are eleven tokens of [-ing] occurring in a negative construction, four of which are well-formed utterances (16). Of the six occurrences of the third person present progressive, four appear in the first cycle and have the auxiliary *be* omitted and only one instance occurs with the correct personal pronoun (17). Table 10.12 outlines AND's use of the auxiliary *be* with the progressive morpheme. The structure V + [-ing] occurs without the auxiliary in 18 out of 123 cases where an auxiliary is required. The auxiliary occurs in both full and clitized form from cycle one.

    (14) *AND: and one boy it was going [1]
        *AND: him was walking [1]
        *AND: him was playing [1]
        *AND: a boy and a girl it was playing [2]
        *AND: him was losing [3]
        *AND: him was running away [3]

    (15) *AND: was trying to get away [3]
        *AND: was trying to eat [3]
        *AND: was trying to do xxx [3]
        *AND: was trying to do cookie [3]
        *AND: was trying to kill Superman [3]
        *AND: was trying to stop the racket [: rocket] [3]

*AND: he was trying to hit him [3]
*AND: he was trying to keep helping Superman [3]
*AND: bad one was come trying to eat him [3]
*AND: bad one was keep trying to kill Superman [3]
*AND: was keep trying to kill him [3]
*AND: was trying to kill the bad one [3]
*AND: him was keeping [/] keeping trying to kill Superman [3]

(16) *AND: he's not going [1]
    *AND: it's not seeing [1]
    *AND: I no was getting a party birthday [1]
    *AND: he's not eating [1]
    *AND: he was not eating [1]
    *AND: he not getting any [//] anything [1]
    *AND: because is not was seeing [2]
    *AND: I not going [2]
    *AND: what is not working that thing [4]

(17) *AND: [: **him**] **eating** cats [1]
    *AND: **he biting** only not <the big, the bad> [//] <the small> [/] the small
            dinosaur [1]
    *AND: something fight what with doing power and **him destroying** [1]
    *AND: **him playing** football [1]
    *AND: and then **him staying** it him nose [3]
    *AND: and **him staying** in the house [5]

Table 10.12 Suppliance of auxiliary with progressive [-ing]							
	AND1	**AND2**	**AND3**	**AND4**	**AND5**	**AND6**	**Total**
[-ing] requiring auxiliary	36	22	30	8	13	14	**123**
Auxiliary supplied	31	20	28	5	10	11	**105**
Incorrect auxiliary supplied	2	2	0	1	0	0	**5**

10.4.3 ELV

There are a total of 125 [-ing] tokens in ELV's data, with 45 different lexical items inflected with the [-ing] morpheme, of which 20 are regular verbs and 25 are irregular. Use of [-ing] peaks in cycles two to four (Table 10.13). The [–ing] morpheme occurs most frequently with *go* (28 tokens), *do* comes next (8 tokens), followed by *come, play* and *sleep*, which have 6 tokens each.

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Table 10.13								
Number of V[-ing] tokens in each recording cycle								
	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Total
Tokens	5	21	29	33	11	10	9	7	125

In the first cycle of ELV's data, there are 5 tokens and 4 different lexical items, so it can be said that the [-ing] morpheme has emerged (Zhang, 2004). The presence of minimal pairs is evident in (18), suggesting productive use of the [-ing] morpheme (Palotti, 2007). Evidence of creative construction is found in (19), when the verb *be* and the past tense of *fall* are inflected with the [-ing] morpheme. Examples of non-agreement between number and auxiliary are shown in (20). In (21) there are examples of utterances that, while grammatically are well-formed, lexically, they are not.

(18) *ELV: but it didn't **go** [1]
    *ELV: he was **going** away from the guard. [1]

(19) *ELV: flower that will felling down [3]
    *ELV: I was being downstairs [2]

(20) *ELV: my dad and my brother's going to make [//] buy [4]
    *ELV: Ameen and Daniel is going back [5]
    *ELV: cars was driving [8]

(21) *ELV: I was driving on my bike [4]
    *ELV: and I was driving on my bike [4]
    *ELV: they're shaking already [4]
            [referring to a scab on his face that is about to fall off]
    *ELV: I was doing songs [4]

Table 10.14 summarises the suppliance or omission of the auxiliary verb *be* in the data of ELV. The auxiliary occurs in both full and clitized form from cycle two. Only the full auxiliary is produced in cycle one.

Table 10.14 : Suppliance of auxiliary with progressive [-ing]								
	ELV1	ELV2	ELV3	ELV4	ELV5	ELV6	ELV7	ELV8	Total
[-ing] requiring auxiliary	5	16	22	28	7	9	7	7	101
Auxiliary supplied	5	15	17	28	7	8	6	7	93
Incorrect auxiliary supplied	0	0	1	0	1	0	0	1	3

10.4.4 AME

There are 135 [-ing] tokens in the data of AME, constituting 57 verbs, 29 which are regular, and 28 are irregular. The highest number of tokens is in the sixth cycle. In all other cycles, the number of tokens does not vary considerably (Table 10.15). *Go* accounts for 16 tokens, followed by *do* (11 tokens), *get* (7 tokens) *try* and *play* (6 tokens) and *talk* and *forget* (5 tokens).

Table 10.15
Number of V[-ing] tokens in each recording cycle

	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8	Total
Tokens	22	13	9	11	20	31	15	14	**135**

Minimal pairs are evident from cycle one (22). There is also a high level of lexical variety in cycle one, with 22 [-ing] tokens inflecting 18 different lexical items. Over-generalisation of the [-ing] morpheme is present in cycle eight (23), suggesting a rule-formation process for the [-ing] morphological construction is in operation.

> (22) *AME: he **fights** them [1]
>   *AME: they were **fighting** [1]
>
>   *AME: I **go** to the car [1]
>   *AME: this piece **goes** here [1]
>   *AME: we were **going** to Ireland [1]
>
>   *AME: **look**, he's putting his hand together [1]
>   *AME: are we reading it or just **looking** at this?   [1]
>
> (23) *AME: I'm seeing that. [8]
>   *AME: I'm getting tired when I wake up [8]

Table 10.16 outlines the suppliance or omission of the auxiliary in the data of AME. The full and clitized auxiliary are produced from cycle one.

Table 10.16 Suppliance of auxiliary with progressive [-ing]

	AME1	AME2	AME3	AME4	AME5	AME6	AME7	AME8	Total
[-ing] requiring auxiliary	19	6	2	8	11	20	14	13	**93**
Auxiliary supplied	18	6	2	8	10	20	14	12	**90**
Incorrect auxiliary supplied	3	0	0	0	1	2	1	0	**7**

10.4.5 SAR

There are 144 tokens of the [-ing] morpheme in the nine recording sessions of SAR, occurring with 63 different lexical items, 34 of which are regular verbs and 29 are irregular verbs. *Go, get* and *dance* account for fourteen, ten and eight tokens respectively and *do* and *hold* have seven tokens each. The use of the progressive [-ing] peaks in the middle of the longitudinal study, and tapers off towards the final recording cycles (Table 10.17).

Table 10.17
Number of V*ing* tokens in each recording cycle

	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9
Tokens	8	21	15	24	26	16	10	14	10

Minimal morphological pairs are evident from cycle one (24). Evidence of creative-construction is found in cycle six (25). Over-use of the [-ing] morpheme is shown in (26).

> (24) *SAR: my mum has work to **do** [1]
>   *SAR: my mam **does** [1]
>   *SAR: my sister **doesn't** [1]
>   *SAR: my dad was **doing** the work [1]

> (25) *SAR: is this rhyming [6]

> (26) *SAR: when Cavita's getting big [4]
>   *SAR: they might be sending you a birthday eh [6]
>   *SAR: Reshma is only speaking English in her family [7]
>   *SAR: I'm asking your dad [9]
>   *SAR: I might be asking him [9]

Table 10.18 outlines the suppliance or omission of the auxiliary in the data of SAR. Both the full and clitized auxiliary are produced from cycle one.

Table 10.18: Suppliance of Auxiliary with progressive [-ing]

	SAR1	SAR2	SAR3	SAR4	SAR5	SAR6	SAR7	SAR8	SAR9	Total
[-ing] requiring auxiliary	6	15	9	20	11	14	8	8	9	**100**
Auxiliary supplied	6	15	8	20	11	14	8	7	9	**98**
Incorrect auxiliary supplied	1	0	0	0	0	0	0	0	0	**1**

10.5 Lexical Aspect of [-ing] morpheme

In this study, each verb inflected with the [-ing] morpheme, was assigned to an aspectual class, composed of features based on the following tests:

- Has no goal, has duration but without necessary endpoint, allows phrases such as 'for hours' *[Activities]*
- Begins and continues an activity and brings to an end point, has an activity phase and a closing phase *[Accomplishment]*
- Once it has taken place, it is over, has success condition built into it *[Achievement]*
- No obvious action *[State]*
- Repetitive action *[Semelfractive]*

Table 10.19 shows the distribution of lexical verbal categories and the use of the progressive [-ing] for each subject. Analysis of the data concur with Bardovi-Harlig (2000, p. 227) who postulates that in languages that have progressive aspect, progressive marking begins with activities, then extends to accomplishments and achievements and are not incorrectly over-extended to stative-verbs. Without exception, all subjects use the progressive with activity verbs in over 54% of cases. HIC and AND, both or whom have not achieved a high level of [-ing] mastery, use the progressive with activity verbs on 62% and 65% of occasions respectively. SAR, who has a high level of mastery of the progressive [-ing] morpheme, has the lowest use of progressive with activity verbs, with 54% of verbs inflected with the [-ing] morpheme being activity verbs.

Table 10.19 Distribution of lexical aspect and progressive [-ing] for each subject					
Lexical Categories	**HIC**	**AND**	**ELV**	**AME**	**SAR**
Activities	62%	65%	61%	63%	54%
Accomplishments	19%	17%	30%	24%	28%
Achievements	16%	14%	8%	11%	17%
Stative	1%	3%	0%	0%	0%
Semelfractive	2%	1%	1%	2%	1%

10.6 Conclusion

The [-ing] morpheme was mastered at different levels by the five subjects in the study, with different growth trajectories apparent. Analysis of the data reveals that three of the subjects, SAR, AME and ELV, have mastered the morpheme and, while subjects AND and HIC have not mastered the morpheme to a significant level, it can be said that the morpheme has well and truly emerged in their data. Subjects AND and HIC showed similar levels of mastery while use of the morpheme by AME, SAR and ELV was also at a comparable level.

One of the primary aims of this chapter was to ascertain the subjects' L2 grammatical knowledge of the [-ing] morpheme. Three subjects, SAR, AME and ELV use the [-ing] morpheme with over 80% accuracy in obligatory contexts, while AND and HIC have an accuracy rate of 75% and 56% respectively in obligatory cases. All subjects, to varying degrees, use the [-ing] to mark future, past and present tense reference, and display knowledge that the progressive marker is used with the auxiliary form of the verb *be*, in the form of *aux* + V + [-ing]. Across all stages of development, the auxiliary appears in both its full and clitized form. Suppliance of the auxiliary ranges from 64% for HIC to 98% for SAR.

It was also observed that all five subjects use the [-ing] morpheme to mark time reference. However, there is considerable variation between subjects. HIC, who has a low level of mastery predominantly uses [-ing] to mark present tense reference, and past and future tense reference is low. AND, on the other hand, who also has a low level of mastery of the morpheme, tends to use it to mark present and past tense reference, and reference to future tense events is negligible. Subjects SAR, AME and ELV, who have a high level of mastery of the morpheme, display a more even spread of the morpheme across events with present, past and future reference. For four out of the five subjects, the [-ing] morpheme is predominantly used to mark present-tense events. AND is the only subject who uses the [-ing] morpheme with past-tense reference more than present or future tense reference.

This chapter also aimed to establish the stages of development that are evident in the acquisition of the [-ing] morpheme. There is a significant drop in the number of [-ing] tokens in AND's corpus over time. In the first three cycles, there is an average of 36 [-

ing] tokens. However, in cycles three to six, this number drops significantly to an average of 14 tokens per cycle. This drop correlates with a drop in other inflectional morphemes, mirroring the pattern of acquisition of the third person singular [-s] morpheme, which also sees a significant drop in the number of tokens in the last half of the cycle, with the average number of verbs inflected with the [-s] morpheme dropping from 36 in the first three cycles to 6 in the last three cycles.

Analysis of HIC's data reveals that there is no significant change in how the [-ing] morpheme develops over time. Suppliance of the auxiliary drops from an average of 82% in the first four cycles to an average of 58% in the last four cycles, while the accuracy of the morpheme drops from 75% in cycle one to 66% in cycle eight. The only significant change is seen in the number of tokens. A shift in the number of [-ing] tokens can be observed from cycle four. In the first three cycles, there is an average of six [-ing] tokens. In cycles four to eight, this number jumps significantly to 37. While some of this jump can be attributed to longer recording sessions, it can not fully explain the leap. For HIC's case, it is evident that increasing emergence of the structure does not equate to an increase in accuracy use.

For subjects AME, SAR and ELV there is no significant change in their use of the [-ing] morpheme, and their high accuracy rates, together with the high level of lexical variety, would suggest that their level of mastery of the morpheme has stabilised and at a level which is comparable to typically developing monolingual English speakers of a similar age (Jia and Fuse, 2007 citing Rice et al. 1998).

Finally, this chapter aimed to ascertain what was the most inherent lexical verb class in the data of each subject and to see if there was evidence from the data that the use of the [-ing] morpheme is governed by the inherent lexical aspect of the verb. For all five subjects, the most inherent lexical verb class is activities. Subjects AME, ELV and SAR, who have mastered the [–ing] inflectional morpheme, extend the use of the progressive marker slightly more to accomplishment verbs than subjects HIC and AND. However, it should be noted that, on the whole, there is not a huge discrepancy between subjects in the spread of the [–ing] morpheme across the different lexical verb classes. Use of the [-ing] morpheme with activity verbs ranges from 54% to 65%, accomplishment verbs range from 17% to 30%, achievement verbs range from 8% to

17% and semelfractives range from 1% to 3%. AME's use of the [-ing] morpheme to mark the inherent lexical aspect of verbs does not vary significantly during the course of the study. SAR, on the other hand, only begins to mark achievement verbs from cycle 4 and by cycle 9 the [-ing] morpheme occurs with more achievement verbs than accomplishment verbs. ELV only begins to mark achievement verbs from cycle 3, and there is little fluctuation between the inherent lexical marking of verbs from cycle 3 through to cycle 8.

It should be noted however, than in analysing the most frequently occurring verbs that are inflected with the [-ing] morpheme, the verbs *go* and *do* are amongst the most frequently occurring verbs for all five subjects and the verbs *get* and *play* rank as frequently occurring for four of the five subjects. While it is true that these are all activity verbs, they are also verbs that would occur frequently in the child's input, suggesting that maybe the [-ing] is more likely to occur with specific verbs, rather than with specific aspectual classes.

Finally, analysis of the data from the corpus corroborate findings from other studies which found that when inflections emerge, they primarily function as markers of inherent aspect rather than deictic tense and, consequently, are not spread evenly across all verbs (Haznedar, 2007, p. 384).

This chapter concludes the findings and discussions on the five morphemes that were the subject of this study's investigation. From chapter four through to this current chapter, the findings relating to each individual morpheme were discussed separately. In the final chapter which follows, an aggregate result based on all the individual chapters will be presented, and the five research questions which were stated initially will be addressed.

Chapter 11: Summary and Conclusion

11.1 Introduction

This final chapter reflects on the overall study, and revisits the research questions which were stated in section 3.3. The chapter will be divided into three sections. The first section will briefly summarise the significant findings and conclusions that were reached in relation to each of the five individual morphemes that were the focus of the study. The second section will look at the findings of chapters four through to ten as a whole and will illustrate how these findings answer the five research questions which directed the course of the study. Finally, the third section reflects on the study as a whole, discusses the contribution of this work to the existing body of knowledge and makes recommendations for future research in the area.

11.2 Summary of Significant Findings

This section will summarise the significant findings that emerged after a detailed analysis was conducted on each of the five morphemes that was the focus of the current study. In order to explore the acquisition trajectory for each subjects' morpheme use, the detailed analysis involved looking at 1) the correct suppliance of each morpheme in an obligatory context; 2) morphological and non-morphological error classifications; 3) morphological productivity and 4) morpheme omission.

11.2.1 Significant Findings of the plural marker [-s]

Chapter four, which looked at the use of the plural marker [-s] in the subjects' data, found that onset of use of this morpheme was early, with very little variation in individual growth rates. In addition to displaying a high level of accuracy, subjects also demonstrated lexical productivity, selectivity and contrastivity of use and produced morphological errors. An error analysis was conducted on all errors and the error which occurred with the highest frequency was the addition of the regular plural morpheme to a mass noun. The error with the second highest frequency was non-morphological, where the plural form of a count noun was used in an obligatory singular context. Most errors occurred with mass nouns, rather than irregular nouns that undergo a stem change in their plural context. Only a small proportion of errors resulted from the pluralisation of irregular nouns that undergo a stem change.

11.2.2 Significant Findings of the past tense [-ed]

Chapter five looked at the use and emergence of past tense inflections in the subjects' data. Variation in the levels of acquisition between the subjects was significant. However, subjects demonstrated lexical productivity, selectivity and contrastivity of use, as well as morphological productivity. Error analysis reflects a U-shaped developmental curve. For subjects with a lower level of mastery, the most frequently occurring error was the use of the root form of a verb in an obligatory past context. Over-regularisations were rare or non-existent. For subjects with a higher accuracy level, the most frequently occurring error was morphological, as a result of over-regularisations. Data also revealed that over-regularisations did not occur at the early or final stages of the acquisition process. Verbs most frequently inflected for past tense were irregular verbs.

11.2.3 Significant Findings regarding the similarity of plural and past tense acquisition process

Based on the analysis of past tense and plural inflections, evidence from the data reveals that these two morphemes share similar patterns of acquisition and error formations. The acquisition pattern for the two morphemes does not support the single-system connectionist account as there is no evidence that input is driving acquisition. In addition, the rate of morphological errors, in the form of over-regularisations, does not support the single system account, as these error rates provide no evidence that the acquisition of both morphemes is a gradual process. Analysis of the data does, however, provide evidence to support the dual-mechanism approach. Such evidence stems from the subjects' ability to readily inflect both frequently and infrequently occurring verbs and nouns with the relevant plural or past tense marker. Other evidence is provided by the over-regularisation rates and the qualitative change in morpheme use that occurs in the data. Chapter six also outlined the psycholinguistic differences in the acquisition pattern of plural and past tense inflections. Evidence that plural-noun inflections are acquired earlier than past tense verbal inflections is consistent with previous studies. However, there are also a number of findings from this study that do not concur with previous studies. The notion that the over-regularisation of noun-plurals is likely to occur earlier than the over-regularisation of verbs inflected for past tense is not supported by the data in this

study. This study also calls into question the notion that language learners over-regularise nouns marginally longer than they do verbs. Finally, evidence from this data questions the claim that no-change verbs are less likely to be regularised than other irregular verbs.

11.2.4 Significant Findings of the third person singular [-s] morpheme

Chapter seven and eight explored the acquisition pattern of the third person singular [-s] morpheme, and in particular, the parallel use of both finite and non-finite forms in obligatory finite contexts. In order to establish whether evidence from the current study supports the various theories presented in the literature, a detailed analysis of the use of the third person singular [-s] morpheme was conducted. As only 3% of errors were finite errors, the data presented a challenge for the impairment approach, as for this approach to hold through, subjects should make errors with both finite and non-finite verb forms. The large number of verbs which occur in both finite and non-finite forms in obligatory contexts challenges the Input-driven Account, the Missing Agreement Account and the Implicit Rule Deficit Account. While there is much evidence in the data to support the OI hypothesis, the infrequent occurrence of null subject sentences and accusative pronouns weakens the argument slightly. In order to test the MSIH, two hypotheses were tested. These were the production of non-finite forms in place of finites and evidence of little or no incorrect finiteness. Data from the study reveals that incorrect finite errors only account for 3% of errors. In addition, the use of non-finite forms in place of finite forms occurs very frequently, providing evidence to support the MSIH.

11.2.5 Significant Findings of possessive [-s] morpheme

Chapter nine explored the genitive [-s] possessive morpheme. Examining the acquisition pattern of both the third person singular [-s] morpheme and the possessive [-s] marker reveals that, for four of the five subjects, there is a similarity in the pattern with which both morphemes are acquired, with the acquisition of the possessive marker occurring slightly earlier than the third person [-s] morpheme.

However, evidence from the data questions the extent to which a parallel occurs between the two morphemes in relation to the notion that the objective case is the default case in both nominal possessive projections and third person verbal projections.

11.2.6 Significant Findings of progressive participle [-ing]

Chapter ten explored the inflectional [-ing] morpheme from the viewpoint of how it is used to mark the grammatical aspect of the verb, with respect to present, past and future tense reference. All five subjects use the [-ing] morpheme to mark future, past and present tense reference and display knowledge that the progressive form of the verb is used with the auxiliary form of the verb *be*, in either full or clitized form. However, it was noted that the greater the subjects' level of accuracy, the greater the spread of the morpheme across events that mark past, future and present events. Similarly, the lower the level of mastery, the less the tendency to use the [-ing] to mark future events. In addition to the grammatical aspect of the verb, this chapter also investigated the inherent lexical aspect of the verb and explored whether there was evidence from the data that it governs the use of the [-ing] morpheme. For all five subjects in the study, the most inherent lexical verb class inflected with the [-ing] morpheme is that of activities. However, subjects who had a relatively high level of mastery of the morpheme extend the use of the morpheme slightly more to accomplishment verbs, when compared to subjects who demonstrate a lower level of [-ing] mastery.

The section which follows will look at the findings as a whole and will demonstrate how these findings will address the five research questions which directed the course of the study.

11.3 Research Question 1

What is the developmental sequence in the acquisition of five morphemes in five language minority children studying at Irish Primary Schools; specifically the plural [-s] morpheme, the past tense [-ed] morpheme, the third person singular [-s] morpheme, the possessive [-s] morpheme and the progressive participle [-ing]?

Tables 11.1-11.5 chart the order of acquisition of the five morphemes for each of the subjects that took part in this longitudinal study.

11.3.1 AND

The acquisition order for AND, displayed in Table 11.1 is straightforward to interpret and can be summarised in (1).

(1) plural [-s] > prog [-ing] > past tense > 3PS

The plural [-s] morpheme is acquired prior to the progressive participle [-ing], which is acquired prior to the past tense. The third person singular [-s] morpheme lags very much behind and is only charted for the first four cycles, as due to the criteria level set at the onset, any morpheme that does not occur five times in a particular cycle is omitted from analysis. Similarly, due to the low level of use of the possessive [-s] marker, it is not ranked at all in the study.

Table 11.1: Suppliance of Morpheme in Obligatory Context AND
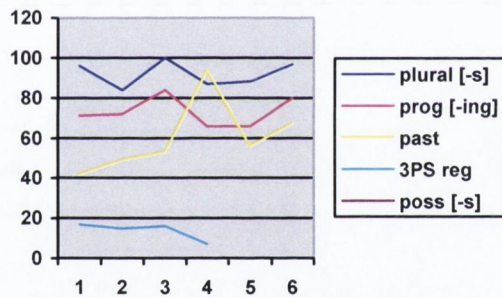

11.3.2 HIC

The acquisition trajectory for HIC is illustrated in Table 11.2 and can be summarised in (2). As the sixth cycle is the only cycle where the possessive [-s] marker occurs on five or more occasions, its trajectory is not charted. The third person singular [-s] morpheme is only beginning to emerge in the study and at a very early stage in the acquisition process.

(2) plural [-s] > prog [-ing] > past tense > 3PS
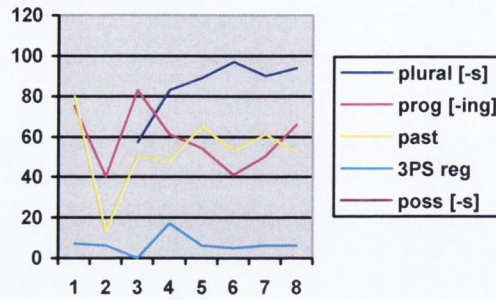
11.3.3 ELV

Table 11.3 shows the sequence of the acquisition of each of the five morphemes as they occur in the speech samples of ELV. The sequence can be summarised in (3). However, it should be noted that the ranking of the possessive [-s] marker in second position creates an anomaly, as this ranking results from a high percentage score in cycles one, two and four only. In cycles three, seven and eight, the morpheme is omitted from analysis, as it occurs less than five times in each cycle. The morpheme does not occur at all in cycles five and six. The acquisition of the third person singular [-s] morpheme and the past tense marking are similar, with the third person [-s] at 74% and the past tense morpheme at 73%.

(3) plural [-s] > possessive [-s] > prog [-ing] > 3PS

                                                          Past tense

Table 11.3: Suppliance of Morpheme in Obligatory Context ELV
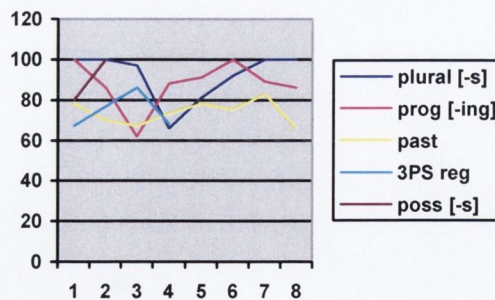

11.3.4 AME

Table 11.4 charts the acquisition trajectory of each of the five morphemes as they occur in AME's data. The sequence can be summarised in (4). Due to the low number

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of tokens for the possessive [-s] morpheme, it is not charted, as from cycles two to eight, it occurs less than five occasions in every cycle.

(4) plural [-s] > past tense > prog [-ing] > 3PS

Table 11.4: Suppliance of Morpheme in Obligatory Context AME
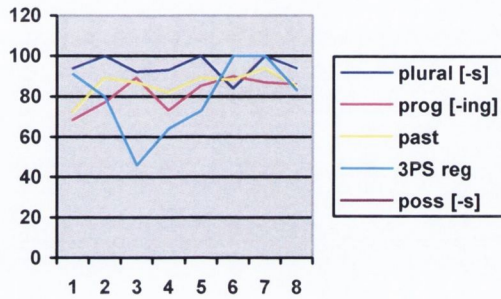

11.3.5 SAR

Table 11.5 illustrates the sequence of acquisition for each of the five morphemes in SAR's data. The sequence is summarised in (5). As with ELV, the ranking of the possessive [-s] in first position is an anomaly, as it is based on the result of one cycle only. For eight out of the nine cycles, the possessive [-s] morpheme either did not occur or was excluded from analysis as it had less than five tokens in the sample.

(5) possessive [-s] > 3PS > past tense> prog [-ing] > plural [-s]

Table 11.5: Suppliance of Morpheme in Obligatory Context SAR
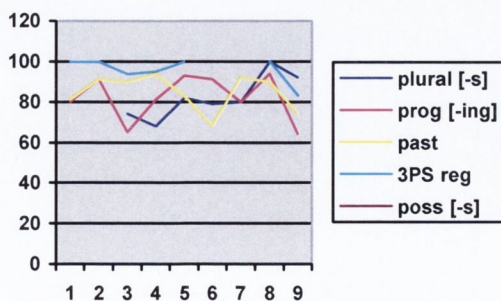
11.4 Research Question 2

What is their pattern of development?

The pattern of development for each individual morpheme has been discussed in detail in the discussion and findings chapters of this dissertation. The pattern of development was discussed under such headings as morphological and non-morphological error classification, morphological productivity and morpheme omission. This section will look at the development of all five morphemes together in an attempt to establish an overall pattern of development.

As illustrated in Table 11.1, the acquisition trajectory of AND reveals that the three morphemes which are at a late stage in the acquisition process display a typical U-shaped developmental pattern, where a high percentage of accurate suppliance of the morpheme is followed by a period of inaccurate production, after which the level of accuracy of the morpheme starts to improve again. The third person singular [-s] morpheme is only just beginning to emerge and as it is at such an early stage in the acquisition process, it is not possible to say whether it will display the same U-shaped curve as is evident with the other three morphemes in AND's data. Similarly, the number of tokens of the possessive [-s] morpheme is too low to establish a pattern of development. As can be observed from Table 11.1, the patterns of development for both the plural [-s] morpheme and the progressive [-ing] morpheme are almost mirror images of each other, with both morphemes displaying almost identical patterns of development.

As is evident from Table 11.2, which charts the developmental sequence for HIC, the pattern is more erratic. Initially, past tense inflections and the progressive [-ing] show a similar U-shaped pattern of development, where high levels of morpheme accuracy are followed by low levels of accuracy. As the acquisition process advances for past tense inflections, the gap that results from alternating between high and low levels of accuracy begins to decrease. The pattern of development for the plural [-s] morpheme does not show the characteristic U-shaped pattern. Instead, it shows progressive leaps in the acquisition, with no evidence of the morpheme undergoing the characteristic period of overregularisation, which would result in a temporary drop in the accuracy level. This can be explained by the fact that in the final cycles of the study, HIC is considered to have mastered the plural [-s] morpheme, so it is likely that the U-shaped

curve would have occurred prior to the commencement of the longitudinal study. While the third person singular [-s] morpheme is only beginning to emerge, there is some evidence of an improvement in accuracy level, followed by a decrease in the level of accuracy.

As is evident from Tables 11.3, 11.4 and 11.5, which depict the pattern of acquisition of morphemes produced by ELV, AME and SAR respectively, all four morphemes display a U-shaped pattern of growth. (The possessive [-s] morpheme is omitted from analysis, due to insufficient tokens). For all three subjects, although it can be said that they have acquired the plural [-s] and the progressive [-ing] morpheme, their mastery of the morphemes has yet to fully stabilise. As can be observed from Table 11.5, the level of accuracy of all four morphemes produced by SAR shows a slight drop in the final cycle. A similar observation can be observed from AME's pattern of development, as illustrated in Table 11.4.

To summarise this section, it can be said that the pattern of development displayed by the five subjects in their production of the various morphemes reveals a pattern which is similar to the characteristic U-shaped pattern of development.

11.5 Research Question 3

Is there evidence of language development over time?

Table 11.6 presents the percentage of each of the five morphemes that are correctly supplied at the start of the longitudinal study compared with the percentage of each of the morphemes correctly supplied at the end of the study. While there is some evidence of morpheme development over the course of the study, this development is not very significant, and does not apply to all morphemes or to all subjects. For one subject, HIC, there is evidence of negative development for all four morphemes analysed. This is unexpected, as HIC is at a relatively early stage in the acquisition process, when compared to ELV, AME and SAR, so it would be expected that development might take place at a faster rate. For the remaining four subjects, morphemes that show evidence of development are highlighted in yellow. Evidence for the greatest degree of change occurs with past tense inflections in AND's data, going from 42% to 67%, a change of 25 percentage points. Evidence of morpheme development is found for only one morpheme in SAR's data, for two morphemes in

AND and ELV's data and for three morphemes in AME's data. However, it should be noted that, according to Jia and Fuse's (2007) criteria, SAR is considered to have mastered four morphemes (plural [-s], progressive [-ing], past tense and third person singular), so there is less scope to observe evidence of language development. Similarly, AME is considered to have mastered three morphemes (plural [-s], progressive [-ing] and past tense inflections) and ELV has mastered 2 morphemes (plural [-s] and progressive [-ing]).

Table 11.6: Comparison between % of morphemes correctly supplied at start of study and end of study for all subjects

	AND1	AND6	HIC1	HIC8	ELV1	ELV8	AME1	AME8	SAR1	SAR9
Plural [-s]	96%	97%	100%	94%	100%	100%	94%	94%	81%	92%
Prog [-ing]	71%	80%	75%	66%	100%	86%	68%	86%	80%	64%
Past tense	42%	67%	80%	52%	78%	66%	72%	85%	81%	74%
Possessive [-s]	--	--	--	--	80%	90%**	--	--	--	--
3PS reg	17%	7%*	7%	6%	67%	83%	91%	100%***	100%	83%

* This figure is from AND4, as due to low number of tokens, cycles 5 and 6 are excluded from analysis
** This figure is from ELV 4, as due to low number of tokens, cycles 5-8 are excluded from analysis
***This figure is based on AME7, as due to the low number of tokens, cycle 8 is excluded from analysis

11.6 Research Question 4

Do the five subjects in the study acquire the different morphemes in a similar order?

Four of the five subjects acquire the morphemes in a fairly consistent order (Table 11.7). For subjects AND and HIC, their acquisition order is identical. The common order for subjects AND, HIC, ELV and AME is that the plural [-s] morpheme is acquired prior to the progressive [-ing] morpheme, which is acquired prior to the third person singular [-s] morpheme. In addition, for these four subjects, past tense inflection is acquired prior to, or at the same stage as, the third person singular [-s] morpheme (for ELV, the acquisition of both these morphemes is almost identical, with the third person [-s] morpheme at 74% and the past tense morpheme at 73%). However, the order with which SAR acquires the five morphemes is almost an inverted sequence of that acquired by the other four subjects.

Table 11.7 also provides evidence to support the 4-M(orpheme) model explanation, discussed in 2.3.11, which states that early system morphemes, such as the plural [-s] and the progressive [-ing] are acquired prior to late-system bridge and outsider morphemes, such as the possessive [-s] and the third person singular [-s].

Table 11.7: Morpheme Acquisition Order for each Subject				
HIC	AND	ELV	AME	SAR
① plural [-s]	① plural [-s]	① plural [-s]	① plural [-s]	① possessive[-s]
② prog [-ing]	② prog [-ing]	② possessive[-s]	② past tense	② 3PS
③ past tense	③ past tense	③ prog [-ing]	③ prog [-ing]	③ past tense
④ 3PS	④ 3PS	④ 3PS	④ 3PS	④ prog [-ing]
⑤ possessive[-s]	⑤ possessive[-s]	⑤ past tense	⑤ possessive[-s]	⑤ plural [-s]

11.7 Research Question 5

Is the pattern of morphological development similar to that reported in other L2 studies?

Research conducted in the field of L2 language acquisition suggests that children acquire morphemes in a more or less consistent manner. Results from this study provide further evidence to show that the subjects acquire the five morphemes in an order very similar to that shown in previous L2 acquisition research. Table 11.8 provides a brief outline of the order of acquisition found in some of the major L2 studies. While these studies looked at many more morphemes than those referred to in the table, only those morphemes that are the focus of the current study are listed. Although there are some basic differences in how the morphemes are classified, such as long and short plural, it is still possible to compare the results from the current study with those listed in the table. Comparing the results from Table 11.7 with those from Table 11.8 shows that, as with four of the five subjects in the present study, the progressive [-ing] and the plural [-s] are one of the earliest morphemes to be acquired. Similarly, both tables show that past tense inflections are generally acquired prior to the third person singular [-s] morpheme. It also shows that the possessive marker [-s] and the third person singular [-s] are generally the last morphemes to be acquired.

Table 11.8: Acquisition Order of English Morphemes in major L2 studies *				
L2 Studies				
Dulay& Burt (1974 nat seq)	Bailey, Madden, & Krashen (1974)	Larsen-Freeman (1975)	Hakuta (1976)	Rosansky (1976)
Progressive	Pres. Progressive	Pres. Progressive	Pres. Progressive	Pres. Progressive
Simple Plural	Plural	Short Plural	Possessive	Possessive
Past Regular	Past Irregular	Past Regular	Past Irregular	Past Irregular
Past Irregular	Possessive	Past Irregular	Plural	Long Plural
Long Plural	3rd Person present	Long Plural	3rd person regular	Past regular
Possessive	Possessive	Possessive	Past regular	3rd person reg
3rd person Sing	3rd Person Sing			

*Adapted from Kwon, E-Y, (2005).

11.8 Contribution to Knowledge

This study makes a significant contribution to existing research on second language acquisition patterns of morphemes. Firstly, the context in which the case study is carried out is unique. It is the first piece of research which has explored the pattern with which morphemes are acquired by language minority children, who are attending mainstream primary schools in Ireland. In addition, there is very little empirical research on second language acquisition in Ireland. The findings from this piece of research will be very valuable to people working in the field of education of language minority children both in Ireland and abroad, and will hopefully alert them to the aspects of language learning (as opposed to language teaching) that will make a major contribution to language support.

Secondly, in terms of specific research findings, the study has identified language learning patterns of the five morphemes that are the focus of the study. In doing so, it has either corroborated or contradicted findings and theories put forward by previous studies in the literature.

Thirdly, on completion of this piece of work, the transcripts from each of the five subjects, which have been transcribed in CHAT format, will be added to the CHILDES database, where it will be available to other researchers should they wish to do further research on language acquisition of language minority children.

11.9 Recommendations for Further Research

Given the large number of issues which have arisen from this study, the potential for further research is huge. As the entire corpus is transcribed in CHAT format, the potential to use this corpus to look at other morphemes or other features of the subjects' interlanguage is vast.

The study has explored the language acquisition pattern of five morphemes acquired by five different subjects, all of whom have a different LI. The potential influence which the L1 might have on the acquisition process has not been explored in this study. According to Little (2000, p. 12), the process of learning a second language becomes more difficult the more the target language deviates typologically from the language learner's L1. Similarly, the more closely related the L2 is to the L1, the greater the likelihood that particular parts will be more easily perceptible to the L2 learner. Therefore, it would be interesting to explore and see if SAR's L1 could offer a possible explanation for the fact that her sequence of acquisition for all five morphemes reads almost as an inverted list of the acquisition sequence of the other four subjects in the study.

Secondly, in the current study, HIC and AND are at a lower end in the acquisitional process than AME, ELV and SAR. At the time of writing, four of the five subjects are still at the same school and the fifth subject is at a different school, but the subject's mother works in the same university as the researcher, so the potential exists to conduct a follow-on study to explore whether or not the gap which currently exists between the subjects in the study has remained or closed-in.

Finally, further scope for research lies in the potential to benchmark each of the subjects' proficiency level in terms of the common reference levels of the Common European Framework of Reference for Languages (CEFR). Currently language support for language minority children attending an Irish primary school is on a class-by-class basis, despite potential differences in the students' level of proficiency. The provision of English support classes where students are grouped according to their particular stage in accordance to the CEFR would be more beneficial to the student.

11.10 Concluding Comments

The purpose of this piece of work was to collect a substantial corpus of natural speech produced by five language minority children attending mainstream primary schools in Ireland, with the aim to establish the acquisition trajectory of five morphemes, in addition to addressing five research questions. The focus of the research questions was on the sequence with which the five morphemes were acquired by each subject in relation to the other morphemes and in relation to the other subjects. Findings were compared with other major studies in the literature and the acquisitional pattern was discussed from a theoretical viewpoint. The research questions which directed the course of the study were fully addressed and potential areas for further study were identified.

Most importantly, the execution of this large piece of work has caused me to reflect on my daily role as an L2 language teacher, and in particular, has made me realise the importance of syllabus design. Most importantly, it has brought about the realisation that the second language learner's production of inaccurate utterances, which are not free from errors, is a necessary stage in the language acquisition process and a stage which will bring their interlanguage closer to the target language norm.

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