MORPHEME ACQUISITION

IN RELATION TO TASK VARIATION:

A CASE STUDY OF A BEGINNING-LEVEL ESL LEARNER

by

REBEKAH LISA DISBROW-CHEN

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS
in
TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES

Portland State University
2004

ABSTRACT

An abstract of the thesis of Rebekah Lisa Disbrow-Chen for the Master of Arts in Teaching English to Speakers of Other Languages presented October 21, 2004.

Title: Morpheme acquisition in relation to task variation: A case study of a beginning-level ESL learner

Over the last thirty years, much research has been conducted on morpheme acquisition and why language learners seem to acquire some morphemes before others. However, none of these previous studies have looked at very beginning-level English as a Second Language (ESL) learners or how the context of a second language classroom might affect the presence or absence of those morphemes in obligatory contexts. This study explores these issues by following a beginning-level Chinese learner at Portland State University's Lab School and examines this learner's interactive language as she studies English over a period of 20 months. My research specifically questions which of fourteen morphemes are present at the very beginning level (Level A) of adult ESL classes, how the presence or absence of the morphemes changes as this learner progresses to higher levels (Levels B and C), and how level and classroom task affect morpheme percent accuracy.

My results show that not all of the fourteen morphemes have obligatory contexts in Level A, but as this learner progresses to Levels B and C, more morphemes are used in the classroom. Over the twenty months of data collection, the

fourteen morphemes' percent accuracies fluctuated greatly. Only one morpheme, the contractible copula, stayed near or above 90% presence in obligatory contexts throughout the data, while most others fluctuated anywhere between 0% and 100% from one session to the next. Overall, I found that the classroom level and the task at hand both have an effect on which morphemes will have obligatory occasions at all. Classroom level, however, did not appear to have as much of an effect on morpheme percent accuracy as task did; tasks which were more structurally-focused resulted in higher percent accuracies for several morphemes than tasks which were more focused on communication.

Because the percent accuracies of the individual morphemes fluctuated greatly over time, questions are raised as to how acquisition should be defined and measured in the second language classroom. This study also critically examines previous research in terms of the importance of context to morpheme acquisition studies by exploring the nature of classroom language.

TABLE OF CONTENTS

Acknowledgments

This project, overall, has spanned more than a year and a half, and many people have helped me along the way. Dr. Kathy Harris, my advisor, has read countless drafts and offered many valuable suggestions and much positive support. I would not have continued with and finished this project if it wasn't for her. All of my amazing co-workers at the Lab School, including Sarah Ouellette, Melanie Jipping, Erica Davila, Gwen Tuason, Shantaya Rao, Craig Topolski, Brett Bolstad, Deb Saari, and Kristen Setzler offered invaluable friendship and support and contributed to my success as a student and as a researcher in many ways. Two of my professors, Dr. Susan Conrad and Dr. Brian Lynch, read early drafts of my research proposal and their critical ideas and encouraging feedback greatly influenced where the project went. I am also grateful to Dr. John Hellermann and Dr. Steve Reder for their generous feedback and ideas, and to the final two members of my thesis committee, Dr. Lynn Santelmann and Dr. Stephen Wadley.

I would also like to thank my parents, Michael and Kristi Disbrow, and my sisters Sarah and Julia for all the love and support they have given me over the years and continue to give, and my husband, Eric Chen, for his love and support, much of which took the form of tasty/sustaining meals and patiently giving me many necessary hours alone with Microsoft Word.

List of Tables

List of Figures

List of Terms

Cross-sectional study: type of data collection that looks at a large number of participants (usually a minimum of fifteen) over a short amount of time

Derivational morpheme: a morpheme that, when attached to a word, changes the part of speech of that word

Focus on Form: a type of teaching which emphasizes "noticing" certain grammatical forms in order to help students acquire them faster

Formulaic chunks/formulaic language: words or sentences that are memorized by learners and used as whole pieces because the learner has not analyzed what each word means or how the words function separately

Inflectional morpheme: a morpheme that, when attached to a word, changes the word's meaning but not its part of speech

Interlanguage (IL): the language system that each individual learner formulates out of the linguistic input that he/she has been exposed to

Longitudinal study: amount of time ranging from six or eight months up to several years, usually used with the case study design

Mean Length of Utterance (MLU): the number of morphemes per a subject's turn at talk

Morpheme: the smallest unit of language that carries meaning with it. Can be "free" (unattached to another word) or "bound" (must be attached to another word). For example the –s on the end of a word means that it is plural, or the suffix –ment makes a word into a noun

Obligatory context: as defined by Brown (1973), contexts where, depending on linguistic constraints and the situation in which the utterance was made, a morpheme would be obligatory in a native-speaking adult's speech

Order of accuracy: a rank order of some part of language, showing which items are used more correctly or accurately (according to the target language) than others

Order of acquisition: a rank order of some part of language, derived statistically to verify that one part of language is acquired before another part, and so on

Rank order: a statistically-derived order that describes one item being definitively present (acquired) before another

Second Language Acquisition (SLA): the learning or acquiring of any language beyond a first language. Thus this can include the acquisition of a third or fourth language

List of Acronyms and Abbreviations

BSM—the Bilingual Syntax Measure

ESL—English as a Second Language

FLA—First Language Acquisition

GRA—Graduate Research Assistant

GSL—German as a Second Language

L1—First Language

L2—Second Language

LSS—Labsite Student Study

MLU—Mean Length of Utterance

MSSR—Modified Sustained Silent Reading

PCC—Portland Community College

PIL—Prompt-Information-Language

PP—Participation Pattern

PSU—Portland State University

SAI—Syntax Acquisition Index

SLA—Second Language Acquisition

SPL—Student Performance Level

UG—Universal Grammar

Preface

It was the spring term of 2003, I was nearing the end of my first year in Portland State University's MA TESOL program, and I knew that if I wanted to graduate soon after finishing my coursework I would need a thesis idea. I began to search everywhere, keeping a little notebook where I wrote down project possibilities, scribbling thesis thoughts in the margins of my textbooks, listening carefully whenever someone, in the course of normal conversation, said, "That would make a good thesis project!" Still, I began to get desperate—I was taking two classes which required me to start researching some topic having to do with Second Language Acquisition, and I hoped that I could combine the requirements of these classes into a thesis proposal.

Around this same time, I was talking with one of my friends, Kristen Setzler, at the Lab School, where both of us worked as Graduate Research Assistants. The Lab School consists of two classrooms where beginning-level adults are taught ESL. These classrooms have been equipped with a state-of-the-art video recording system, with six video cameras and five microphones in each room. All of the students sign release forms and are recorded as they learn English in three-hour-long classes. Kristen was finishing up on her thesis project, but had a wealth of other thesis ideas she thought would make interesting theses. At one point, she mentioned that she thought a study looking at morpheme acquisition, using the naturally-occurring data at the Lab School, would make a fascinating and important project. I nodded and smiled,

looked up “morpheme” in the dictionary again, and noted it in the margin of my SLA textbook.

Soon after that, we read the famous Dulay and Burt (1974) study in my SLA class, which was about morpheme acquisition in children learning English as a second language. Somehow this study fascinated me, and as due dates for the previously mentioned papers were looming, I decided to focus on morpheme acquisition. This was the beginning of my morpheme journey (or “trip,” as some prefer). I began to research more about morpheme acquisition, discovering that there were no studies looking specifically at beginning-level adults learning English, I realized that Kristen was right, that the Lab School would be the perfect setting for such a study. Further, I would not have to create tests or questions to ask any of the students in order to test their morpheme use, but could just use recorded classes and analyze the morphemes present in natural classroom language over time. In fact, the Lab School student I ended up focusing on actually started Lab School classes the same term that I started my MA TESOL classes, so I was able to use data that was recorded before I had the slightest idea of what my thesis would be about.

The decision to focus on morphemes is one I have, at times, bemoaned, as morpheme studies have long been out of fashion and have even nearly been disregarded by some researchers today. But I decided I didn’t want to lose time by changing topics and am now thankful for this, as I have learned much about research and language acquisition in general. Further, my own research has forced me to delve into some rather interesting issues which I believe are important to the field of SLA,

including the role of context in second language acquisition as well as the nature of the beginning-level ESL classroom.

Chapter I: Introduction

The process our brains go through when acquiring a language is largely a mystery, but several theories on language acquisition and second language acquisition (SLA) exist. These can be grouped into the nativist, environmentalist, and interactionist theories. The nativist theories argue that humans have an innate biological endowment—something in our brains, like a computer program, perhaps—that makes acquisition possible. The environmentalist theories disagree, stating that there is no such endowment and all language acquisition comes from the surrounding environment (e.g. parent language or instruction). The interactionist theories, overall, argue that language acquisition is a combination of both these factors. Each of these theories has its own staunch supporters, but most researchers now believe acquisition is possible through a combination of both nature and nurture.

The most famous of the nativist theories is arguably Chomsky's theory of Universal Grammar (UG). This theory more specifically argues that "humans are innately (i.e. genetically) endowed with universal language-specific knowledge, or what Chomsky calls UG" (Larsen-Freeman and Long, 1991, p.228). The theory stems from the fact that as children learn a first language, they "come to know certain properties of grammar that are not obviously learnable from input" (Gass and Selinker, 2000, p. 170). Also, children eventually form "correct" sentences that they have never been exposed to before, and Chomsky thereby hypothesizes that there must be some kind of innate knowledge in the brain that assists language acquisition. He

theorizes, further, that this innate knowledge is universal and its parameters "govern what is possible in human languages" (Larsen-Freeman and Long, 1991, p. 230).

Many linguists have carried out research on the parameters that might be set in UG by looking at the different grammars of languages throughout the world (Larsen-Freeman and Long, 1991). Research on second language acquisition has also provided evidence for UG One type of SLA research looks specifically at grammatical sequences, such as word order or question formation, and has found that learners tend to follow similar patterns in their acquisition of these sequences (Pienemann, 1984, 1989). Other similar research breaks language up into pieces, such as morphemes and examines morpheme acquisition. A morpheme is the smallest unit of language which still has meaning attached to it, and can be a word or a grammatical item such as, in English, the plural *–s* or the past *–ed*. Several studies have looked at grammatical morphemes and found a common order in which certain ones were acquired by large numbers of learners, regardless of these learners' different first languages. Such studies hypothesize that this provides support for UG, that there must be an innate biological endowment in the brain that causes the order in which the morphemes are acquired. However, other researchers have pointed out that perhaps the biological endowment only directs how people learn, and that is why the morphemes are acquired in an order (see Gass and Selinker, 2000). Another possibility is that there is something about the morphemes themselves (for example, their pronunciation, form, or meaning) which determines how easy they are to acquire.

When someone begins to learn a second language, especially for communicative purposes, the most important language parts initially are lexical items that carry meaning, such as nouns and verbs. Other parts of language—grammatical morphemes, in particular—are acquired later, because they are more function-based, and, often the part they play in communication can be expressed in different ways (Brown, 1973). Grammatical morphemes can be divided into two basic categories: first, freestanding words, such as *in* and *on*, and second, what are called *bound* morphemes, those that must be attached to a word (See Figure 1). Bound morphemes can be further divided into *derivational* and *inflectional.* Adding a derivational morpheme to a word results in a different part of speech, such as adding *–ment* to the verb *disagree* turns it into the noun *disagreement*. An inflectional morpheme, conversely, "adds some element of meaning required by the grammar and changes the form of a word without changing its basic part of speech" (Celce-Mercia and Larsen-Freeman, 1999, p. 52). An example of this would be adding *–s* to the noun *dog*, which adds plural meaning to the word *dogs.*

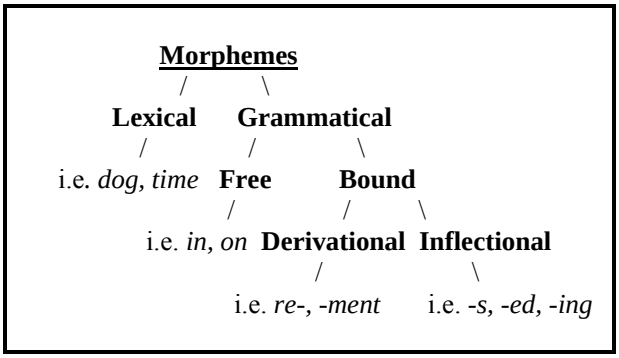


Figure 1. Types of morphemes

The meanings that inflectional morphemes impart, however, can often be described in other ways. For example, if someone wanted to express that he/she has three dogs, saying "I have three dog" and leaving out the plural *–s* morpheme will not impede understanding of that meaning, because the quantifier "three" expresses plurality. Some grammatical morphemes, then, play a role of being shortcuts, as they convey meaning by being attached to other words. Instead of using a whole word or phrase to convey a common meaning, a morpheme can be used, which is primarily why—with formulaic chunks being the exception—grammatical morphemes are used and acquired later in the acquisition process.

The first researcher to study grammatical morphemes and their acquisition on a large scale is Brown, a pioneer in first language acquisition (FLA) research. In a case study of three children learning English as their first language, Brown (1973) found that "content" words such as nouns, verbs, and adjectives were acquired first, while "functors" (or morphemes) and other function words were acquired later. Further, Brown discovered that although the three children he studied acquired English at different rates, the order in which they acquired fourteen morphemes was surprisingly consistent. This finding led to a plethora of other studies in both FLA and SLA, but these studies have been somewhat inconsistent, especially in terms of methodology. This raises questions as to whether the studies have actually measured the same thing. Nevertheless, since Brown's study, discovering a stable morpheme order for English as a Second Language (ESL) and developing an overall theory which could account for the variables involved has become "somewhat of a Holy Grail of SLA research"

(Goldschneider and DeKeyser, 2001). Such a theory could provide important support for there being an innate language mechanism in the human brain, thereby helping to illuminate the workings of the mind when acquiring a second language.

The first SLA study to look at morpheme acquisition was carried out soon after Brown's by Dulay and Burt in 1974. After their study, Dulay and Burt believed that they had discovered an order of acquisition that was stable despite the L1 differences of their subjects. In the next few years, several other SLA studies followed, most of which tried to go further by focusing on something slightly different than L1, such as the type of data collection (using conversation or tests) and task modality differences, for example. Almost as quickly, articles that focused on numerous methodological criticisms were published in response to Dulay and Burt's (1974) study. These criticisms pinpointed problems with the data collection procedures and data analysis and resulted in a subsequent "fall from glory" of the morpheme studies.

Recent advances in technology now allow new data collection procedures that were not possible when the morpheme studies first began, and this is what makes such studies worth revisiting. Methodological limitations partly caused the near-disappearance of the morpheme studies, but with advances in technology, tighter replication studies and other new studies using naturally-occurring data are possible. One major source of such naturally-occurring data is Portland State University's Lab School, where I worked for two years as a graduate research assistant. The Lab School consists of two classrooms where beginning-level adults are taught ESL. This alone fills a gap in the morpheme acquisition research, as few previous studies have

looked at beginning adults learning English. The Lab School classrooms contain six video cameras placed around the room as well as five microphones, all of a quality which allows the students' emergent language to be captured. This level of detail opens up new possibilities in the realm of acquisition order studies; during each class, two students wear lavaliere microphones so that practically everything they say (as well as what the person sitting next to them says) can be heard. For many students, language samples are available almost from when they walk in the door of a Lab School classroom, from the very beginning stages of English acquisition. Further, the project will go on for at least five years, the students are from a variety of ages and come from more than thirty different language backgrounds, and a variety of attitudes, motivations, learning styles, etc. are undoubtedly represented.

For the first two years of the Lab School project, two of the lowest levels of ESL classes (called A and B) were held on site four days a week (See Appendix C). Of those eight classes, four were coded by the Lab School graduate research assistant team and for each of those four classes, approximately twenty minutes of student pair work was also transcribed by the team. For a researcher with a great amount of time and resources, an incredibly broad and detailed study on morpheme acquisition could be carried out using Lab School data, looking at several students in the Lab School and statistically analyzing morpheme frequency of use. But these data are ideal for even a small case study, looking more qualitatively at just one student's acquisition of morphemes. A smaller study such as this is what I have carried out, analyzing the

morpheme presence and absence of a Chinese student over twenty months that she attended classes at the Lab School.

A communicatively-based language classroom revolves around activities that allow students to get to know one another as much as practice different grammatical structures. In a beginning-level classroom, often the students do not know the language they need to perform a task in an activity. Once they have practiced certain vocabulary or structures enough, then they can try to use the language in different ways. Language used in a beginning-level ESL classroom ranges from being very supported by the teacher (such as practice dialogues where all of the language is given) to having less language support from the teacher (such as a conversation topic, where most language comes from the students), but, overall, classrooms are considered to produce naturally-occurring data. The source of data—how language was gathered and/or elicited—was of major controversy within earlier morpheme acquisition studies, but by using Lab School data, some of these criticism are not be applicable. The findings of this study are representative of a certain kind of language—classroom language—and will be presented in those terms.

This study questions some of the generalizations that have been made from previous research on morpheme acquisition. It also explores what acquisition means in second language learning and considers the nature of classroom language, especially at beginning levels of ESL instruction. Overall, I hope this study can serve as a glimpse into the possibilities that the Lab School—and technology in general—give to morpheme acquisition research.

Chapter II: Literature Review

Introduction

Many researchers in the field of Second Language Acquisition (SLA) work from a nativist or interactionist theoretical framework to explain how a second language is acquired. One common approach from the early 1970's and on was to look at specific acquisition orders of items such as morphemes, tense/aspect, and affixes (e.g. Bailey, Madden, and Krashen, 1974; Dulay and Burt, 1974; Larsen-Freeman, 1975; Mochizuki and Aizawa, 2000; Rosansky, 1976; Salaberry, 2000; Tono, 1998; Wei, 2000). Several of these studies have found similar morpheme acquisition orders, which gives particular support to the nativist theories; if, despite several variables, morphemes are acquired in the same order, there might be some kind of innate language acquisition mechanisms at work in SLA. However, a more comprehensive theory illustrating the whys and hows of a stable order of morpheme acquisition would not only shed light on the workings of the brain when acquiring a second language, but would have important implications for teaching SLA, such as in the design of syllabi, materials, and tasks. If some grammatical items are naturally acquired in a certain order, it would make sense to teach the items in that order. Many factors make such an overall theory difficult to pinpoint, however, most notably methodology limitations and the influence of learner variability. The low number of replication studies in this area of linguistics research has hindered the formation of a larger theory, as well.

The studies in this area of SLA have continued despite a rocky path. Their methodologies are based on studies from first language acquisition (FLA), especially a case study by Brown (1973) and a cross-sectional study by de Villiers and de Villiers (1973) which found similar orders of acquisition of eleven English morphemes among several young children. The first study to look at second language acquisition is by Dulay and Burt (1974), and is also the first of "the morpheme studies." Dulay and Burt (1974) came to excited conclusions when their subjects, children from two different first language backgrounds, were found to have a similar order of acquisition of eleven English morphemes. Other studies quickly followed, some encouraged by Dulay and Burt's (1974) findings, others critical of the methodology used. The major criticism revolved around the instrument used by Dulay and Burt to collect language, a test called the Bilingual Syntax Measure (BSM). In their write-up, Dulay and Burt called the language elicited by the BSM "natural," but closer examination of the instrument reveals that it is not natural at all (see Gass and Selinker, 2000). Such methodology criticisms soon overtook Dulay and Burt's study as well as other similar studies, and an invariant morpheme order of acquisition was all but discarded by the late 1970's.

However, these studies did not die completely. They served as a strong base for Krashen's Monitor Theory, which argues that knowledge can be divided into two categories: that which is more naturally acquired and that which is learned. A broad "natural order" was posited by Krashen in 1977, other studies began looking at different variables such as setting (Perkins and Larsen-Freeman, 1976; Pica, 1983),

and still other studies looked at acquisition of grammatical sequences (Pienemann, 1984, 1989) to come to a more conclusive understanding. Some of the most recent studies have looked to the morphemes themselves to explain the order of acquisition (Wei, 2000a, 2000b; Goldschneider and DeKeyser, 2001), while another study uses corpus linguistics to ascertain a morpheme order of acquisition within written texts (Tono, 1998). Since the morpheme studies have had a substantial effect on SLA, (most noticeably through Krashen's Natural Order) and most were based on spoken language, a study similar to Tono's but using natural spoken data from participants representing a variety of L1 backgrounds would provide an important source for comparison. To this date, no known longitudinal corpus studies using natural spoken classroom language have been carried out, which constitutes a significant gap in the research on morpheme order of acquisition. The Lab School, with its large number and variety of adult learners, could support such a research project, and I have carried out a beginning to such a project through a case study of one learner.

Background Studies in First Language Acquisition

Two studies (Brown, 1973, and de Villiers and de Villiers, 1973) in first language acquisition set the precedent for acquisition order studies in SLA. The first is Brown's (1973) five-year longitudinal case study of three children when they were just beginning to produce multi-word utterances. Brown and his team of research assistants recorded and transcribed language during half-hour to two-hour sessions where one of the researchers and the child played together. Although the children's

speech developed at different rates, Brown found that their orders of acquisition of fourteen morphemes were surprisingly consistent. Table 1 details this order.

Order	**Morpheme**
1	Present progressive (verb + *-ing*)
2-3	*in*, *on*
4	Plural (noun + *-s*)
5	Past irregular (i.e. *ran, saw, went*)
6	Possessive (noun + *-s*)
7	Uncontractible copula (*is, am, are, was*)
8	Articles (*a, the*)
9	Past regular (verb + *–ed*)
10	Third person regular (verb + *-s*)
11	Third person irregular (i.e. *does, has*)
12	Uncontractible auxiliary (*is, am, are, was*)
13	Contractible copula (i.e. I*'m*, she*'s*, they*'re)*
14	Contractible auxiliary (i.e. I*'m* going)

Table 1. Acquisition order for English as a First Language, from Brown (1973), p. 281

Brown divided his study into Stages I and II, based on Mean Length Utterance (MLU), or how many morphemes are said per turn at talk. During Stage I, content words were most prevalent in all three of the children's speech and very few function words emerged. Stage II is almost entirely focused on morphemes and the acquisition order that Brown was able to determine. Brown was the first to use occasions of "obligatory context" (p. 255) to measure whether a morpheme is acquired or not, an essential concept in acquisition order studies. As defined by Brown, "Each obligatory context can be regarded as a kind of test item which the [subject] passes by supplying the required morpheme or fails by supplying none or one that is incorrect" (p. 255). In Brown's study, the obligatory contexts could then have one of two scores: one point

was given when the morpheme was correctly supplied, zero points when no morpheme or an incorrect morpheme was supplied. Once a morpheme was present in 90% or more of its obligatory occasions in three consecutive data-collection sessions, it was considered "acquired."

In each of the three children's speech, Brown counted each morpheme's presence or absence in obligatory contexts. From these numbers, Brown could then analyze the order in which the morphemes were acquired by each child. While Brown accounted for differences in several variables that could affect the acquisition order for each child (such as each morpheme's frequency in parent speech, the child's age, the child's rate of morpheme acquisition, and the grammatical/semantic complexity of the morphemes themselves), he found that the order in which each morpheme was acquired was remarkably stable. What Brown's findings seemed to point to was some kind of innate language acquisition device being present in the brains of these three children, since despite these variables the three children had nearly the same order of acquisition of the fourteen morphemes. Even though Brown's study was rather small in terms of participants, his findings were huge, greatly affecting the study of language acquisition as a field, in general.

The next step, seemingly, was to test Brown's findings in a larger group of participants, and this started while Brown (1973) was still in press. de Villiers and de Villiers (1973), colleagues of Brown's at Harvard, carried out such a cross-sectional study, looking at a larger number of children over a much shorter period of time. This study was carried out in order to test whether, as Brown discovered in his three

subjects, age and MLU in combination could predict which morphemes would be acquired at what time. Thus de Villiers and de Villiers suggested that, depending on a child's MLU, "one should be able to predict which morphemes will be present to criterion and which will not. In addition, it might be possible to predict the relative ordering of those morphemes still below criterion" (p. 268).

de Villiers and de Villiers looked at twenty-one young children (aged 16-49 months "covering a wide range of mean utterance length" (p. 267)), with English as their first language. They chose these children because they had participated in a previous study with them, so the children were not chosen randomly, and collected spoken data during two 1½ hour play sessions. The presence or absence of the same fourteen morphemes that Brown (1973) examined was scored in relation to each morpheme's obligatory contexts, and the resulting rank order was remarkably similar to Brown's. de Villiers and de Villiers (1973) also analyzed several variables thought to be responsible for at least part of this similarity in rank order. Like Brown, they found that neither age nor the frequency of the morphemes in parent speech seemed to affect the order, though they found that grammatical and semantic complexity did.

Both Brown (1973) and de Villiers and de Villiers (1973) use the same kind of data collection procedure by using data from play sessions. It is assumed that the researchers did not influence their data by attempting to elicit certain morphemes during these play sessions. Therefore, de Villiers and de Villiers' results from this cross-sectional group study combined with Brown's longitudinal case study results provide potential support for some kind of language acquisition device being present

in first language acquisition, as de Villiers and de Villiers' (1973) study is theoretically similar to Brown (1973) but true for a larger number of learners. Therefore, several children were found to have a very similar acquisition order of fourteen morphemes. Many other researchers then wondered whether the same would be true for second language acquisition.

The Morpheme Studies

Dulay and Burt's 1974 study is the first to look at morpheme order of acquisition in regards to learning English as a second language. This study was modeled after de Villiers and de Villiers (1973) in that it is also a cross-sectional group study, but took place in only one data collection session. Also, the data was collected differently—not through play sessions but with an instrument called the Bilingual Syntax Measure (BSM).

It is important to note that longitudinal and cross-sectional studies are typically considered to constitute rather different methodologies (Larsen-Freeman and Long, 1991). Longitudinal studies tend to use spontaneously-generated language from their subjects and are therefore not usually experimental studies, while cross-sectional studies are often experimental and elicit specific data from their subjects. The subjects in cross-sectional studies are meant "to be representative of a particular stage, or 'cross-section' of the developmental process" (O'Grady and Cho, 2001, p. 410). However, it can be questioned whether a cross-sectional study measures the same type of acquisition as a longitudinal study, especially when the data is collected in different ways, because naturalistic speech is known to differ from elicited speech (see Gass

and Selinker, 2000). Further, subjects in a cross-sectional study must be chosen randomly, otherwise any generalizations that are drawn must be limited to the subjects in the study and cannot be representative of a wider population of learners.

Dulay and Burt (1974) elicited spoken language from 115 children (who were not chosen randomly) of Spanish and Chinese first language (L1) backgrounds using the BSM. The BSM was developed by Burt, Dulay, and Hernandez-Chavez in 1973 for an earlier study, and consists of "seven color cartoon-type pictures and a set of 33 questions" (Dulay and Burt, 1974, p. 39) meant to elicit certain grammatical structures. The structures that Dulay and Burt focused on were eleven English morphemes (ten of which are also in the fourteen that Brown (1973) examined), which they termed "functors." They state that these morphemes were chosen because they are "easily elicited—almost every verbal utterance contains several, and it is also fairly easy to determine whether or not they are used correctly" (p. 38). Each functor was then examined according to its obligatory contexts. Dulay and Burt, however, made a change to Brown's scoring procedure, giving one point for an incorrectly supplied morpheme rather than no points. In other words, their subjects were given two points for correctly supplying a morpheme in an obligatory context, one point for incorrectly supplying it, and zero points for not supplying it. In doing this they exhibit a belief that an incorrectly supplied morpheme is somehow nearer to being acquired or is more accurate than when no morpheme is supplied. If a morpheme was supplied in 90% of its obligatory contexts, it was considered "acquired."

After collecting their data, Dulay and Burt calculated a percent accuracy of types, "computing a ratio whose denominator is the sum of all obligatory occasions (where each occasion is worth two points) for that morpheme . . . and the numerator is the sum of the scores for each obligatory occasion of the morpheme . . . and multiplying the resulting quotient by 100" (p. 44). Those morphemes with a higher percent accuracy would then be considered to be acquired before those with lower percent accuracies. The total number of obligatory occasions was analyzed in three different statistical ways: the Group Score Method, the Group Means Method, and the Syntax Acquisition Index (SAI).

Dulay and Burt first used the Group Score Method, which allowed every obligatory occasion to be used. For example, even if a child had only one obligatory occasion for a certain morpheme, whether it was supplied correctly or not, it still was calculated in the analysis procedure. One major weakness of Group Score Method is the fact that, in the process of acquisition, it is very common that a morpheme will sometimes be supplied and sometimes it won't. Another weakness is that by allowing every obligatory occasion to be used, the Group Score Method could compare morphemes with very few obligatory occasions with morphemes that had hundreds of obligatory occasions, yet all would be divided down into a percent.

The Group Means Method was designed to correct for the first weakness of the Group Score Method, that of the variability of learner morpheme use. In this method, all children who had fewer than three obligatory occasions for each morpheme were left out of each sample. Therefore, if a child has six obligatory occasions for the

plural and eight for the progressive but had only two obligatory occasions for the past irregular, that child's data would be included with the plural's and the progressive's total percent accuracies but not with the past irregular's. However, three obligatory occasions is a very small number, and allows data from subjects who had only four or five obligatory occasions of a morpheme to be compared to those who had twelve or fifteen occasions. However, Dulay and Burt do not give any concrete numbers or even concrete percentages in their article, so the actually numbers that they used in calculating the percent accuracies of this method (and their data in general) cannot be determined.

The third method, the Syntax Acquisition Index (SAI), was created for the BSM and modeled after the method used by de Villiers and de Villiers (1973), which focused on MLU. The SAI is basically a ratio between each child's number of utterances and the number of corresponding grammatical forms, which could then be ranked as a percentage. This method required a sizeable amount of researcher subjectivity, in that Dulay and Burt thought of an overall syntax acquisition index in terms of:

> *how much of the grammatical structure that the child offered in his utterance was well formed.* The quantification of this notion consists of 1) assigning points to the grammatical version of a child's response and 2) subtracting points from this grammatical form to reflect the still 'developing' parts of the child's utterance to obtain a value for it. (p. 47)

However, the number of points each target grammatical utterance was worth and the number of points subtracted for a learner's less-grammatical utterance are not specified. Dulay and Burt likely use a lot of subjectivity by assigning points on how

"well formed" an utterance is. This makes the SAI method difficult to replicate, a major weakness in quantitative data analysis.

These three analyses brought Dulay and Burt to roughly the same order of acquisition of the eleven morphemes (see Table 2), and while this order differed from the one found by Brown (1973) and de Villiers and de Villiers (1974) for child first language acquisition, the use of three methods gave them "confidence" (p. 43) when reporting their results. Since the subjects were from different language backgrounds, Dulay and Burt conjectured further that this order of acquisition was impervious to L1.

	Group Score		**Group Means**		**SAI**
1	Pronoun case	1	Pronoun case	1	Pronoun case
2	Article	2	Article	2	Copula
3	Copula	3.5	Copula	3.5	Article
4	Progressive	3.5	Progressive	3.5	Progressive
5	Plural	5	Plural	5	Auxiliary
6	Auxiliary	6	Auxiliary	6	Plural
7	Past regular	7	Past regular	7.5	Past irregular
8	Past irregular	8.5	Past irregular	7.5	Possessive
9	Long plural	8.5	Possessive	10	Past regular
10	Possessive	10	Long plural	10	Long plural
11	3rd person	11	3rd person	10	3rd person

Table 2. Rank orders for the 11 "functors" using three different statistical analyses from Dulay and Burt (1974), p. 51

Overall, the order of acquisition for English as a Second Language, according to Dulay and Burt (1974), and compared with English as a First Language (from Brown, 1973) is as follows:

	Brown (1973)		**Dulay and Burt (1974)**
1	Present progressive	1	Pronoun case
2	*in*	2	Article
3	*on*	3	Progressive
4	Plural	4	Copula
5	Past irregular	5	Plural
6	Possessive	6	Auxiliary
7	Uncontractible copula	7	Past regular
8	Articles	8	Past irregular
9	Past regular	9	Long plural
10	Third person regular	10	Possessive
11	Third person irregular	11	3rd person
12	Uncontractible auxiliary		
13	Contractible copula		
14	Contractible auxiliary		

Table 3. Acquisition order comparing English as a First Language from Brown (1973) and English as a Second Language from Dulay and Burt (1974, p. 49)

However, there are some very basic problems with their methodology, chiefly with the BSM itself. As an instrument, it requires that the administrator asks rather specific questions in order to elicit the grammatical structures in question (see Gass and Selinker, 2000). Dulay and Burt claimed that the BSM elicits natural speech, but this has been widely questioned by a number of researchers (for a review, see Long and Sato (1984)). If the BSM does not elicit natural speech, then no matter how many analyses are performed on the data, the resulting acquisition order—if indeed accuracy reflects acquisition at all—cannot be considered representative of its subjects or of natural learner speech.

Bailey, Madden & Krashen (1974) did roughly the same study as Dulay and Burt (1974), but is the first study to look at adults. Their 73 subjects were from two different ESL programs, one which focused on academic ESL "for foreign students

preparing to study in American colleges" (p. 237), the other which was a four-hour per week Continuing Education program. The actual levels that their subjects were at (beginning, intermediate, advanced, etc.) are not specified. Bailey, Madden, and Krashen classified their subjects according to Spanish speaking and non-Spanish speaking L1 backgrounds (a category which included eleven other L1s).

Like Dulay and Burt (1974), Bailey, Madden, and Krashen (1974) used the BSM to elicit their data. Instead of looking at the fourteen morphemes Brown (1973) examined, or even the eleven that Dulay and Burt (1974) considered, they chose only eight functors. They left out *in* and *on*, the uncontractible copula, the past regular, 3rd person irregular, and the uncontractible auxiliary without revealing why these morphemes were left out. I suspect, however, that it was due to a lack of obligatory occasions for these six morphemes. Using Pearson product-moment correlations, the researchers compared the relative accuracies of the eight functors and found "a high degree of agreement as to the relative difficulty of the functors" (p. 238). They also compared their subjects' relative accuracies to Dulay and Burt's (1974) results and found a high correlation. They compared their results to de Villiers and de Villiers (1973) as well, and, like Dulay and Burt (1974), did not find significant correlation. Their results, therefore, when combined with Dulay and Burt's (1974) results, seemed to provide evidence for a common order of acquisition for these functors in ESL, as it held for both children and adults.

These studies were beginning to provide persuasive evidence for a stable order of morpheme acquisition in SLA, but since both Dulay and Burt (1974) and Bailey,

Madden and Krashen (1974) used the BSM to collect their data, Larsen-Freeman (1975) decided to test whether their acquisition orders might be a product of the BSM. Her study's subjects included twenty-four adults, six each from four different language backgrounds (Spanish, Japanese, Persian, and Arabic). Her subjects were enrolled in an intensive English program at a university, had similar scores on a placement examination, and were all at the beginning level for that program. Larsen-Freeman used five data collection procedures: 1) reading a story and answering grammaticality judgment questions, 2) reading a story and answering questions, 3) listening and answering questions about a picture, 4) an elicited imitation task, and 5) the BSM. She used the BSM for comparability, and each test was paired with a different skill: reading, writing, listening, imitating, and speaking. She set her study up in the hope of finding:

> clues in the morpheme ordering previously recorded. If the same morpheme order resulted from all five tasks, we would know to look for an explanation for this common order in terms of the underlying complexity of the morphemes—not how they are learned through the exercise of a particular skill, nor how they are manifested through a particular modality. (p. 412)

It is important to note that these five "tasks" were still in the form of tests, and so could only be representative of elicited language.

Using the concept of occasions of obligatory context, and awarding two points for a correctly scored morpheme, one for an incorrect suppliance, and zero for a missing morpheme (like the previous SLA morpheme studies), Larsen-Freeman carried out her experiment, focusing on ten of the eleven morphemes Dulay and Burt (1974) used, leaving out pronoun case "as there was had been a question raised as to

whether it was meaningful to consider case in a morpheme study" (p. 411). Then, the Group Score Method (also from Dulay and Burt, 1974), the method which allowed every occasion of a morpheme to be included, was used to determine a rank for each morpheme. Kendall's coefficients of concordance and Spearman rank correlation were calculated for each task among language groups. Larsen-Freeman found that concordance was high among four of the five tasks (with the exception of the reading task), and concluded that "there is some consistency in morpheme ranking across tasks, but the morpheme orderings are by no means the same on all tasks" (p. 417). Overall, "a single explanation seems insufficient to account for the findings" (p. 419), and Larsen-Freeman suggests looking to morpheme surface form to explain the differences in acquisition order. Larsen-Freeman is also the first to prefer the term "difficulty order" to "acquisition order," thus demonstrating her belief that the emerging morpheme order was more likely due to the morphemes themselves rather than to some kind of innate language mechanism within the brain. It is also important to note that several different first language (L1) groups were used in these studies, groups that ranged from Arabic to Chinese and represented diverse language types.. Because these data still yielded similar orders, the influence of a learner's first language on morpheme order was generally disregarded, However, other research has shown that L1 undoubtedly does play a major role in other areas of second language acquisition, such as pronunciation (see Larsen-Freeman and Long, 1991).

Curious as to whether more spontaneous language from participants would result in a different order, Rosansky (1976) did a case study over ten months with six

subjects (two children, two adolescents, and two adults) learning English from Spanish L1 backgrounds. While her study was primarily a case study, she wanted to also see whether a cross-sectional analysis and a longitudinal analysis would result in similar findings. Rosansky collected spoken data in two discrete ways by using the BSM to gather "elicited" data, and examining "a one hour taped speech protocol" as her "spontaneous" data (p. 414). Since this was partly a study to check the validity of the BSM, Rosansky used the same analysis as Dulay & Burt (1974): "The transcripts were scored for morphemes following Dulay & Burt's methodology, and both Group Scores and Group Means were tabulated" (p. 414). Rosansky hypothesized that her spontaneously generated rank order of morphemes would not correlate with Dulay & Burt's order, but surprisingly, it did. It also correlated with Bailey, Madden & Krashen's (1974) and with Larsen-Freeman's (1975) orders, as well as with the order for L1 acquisition found by de Villiers & de Villiers (1973), all of whom had found somewhat different acquisition orders. Rosansky's results were therefore contradictory, so she analyzed her data more closely and found great variability within her six subjects when statistically compared to one another.

Rosansky is critical of using quantitative means to examine such diverse data. The Group Score Method allows morphemes with very few obligatory occasions to be directly compared to morphemes with many obligatory occasions, numbers which can be misleading. As Rosansky notes, each statistical treatment the data are subjected to "tends to obscure a little more information" while "at the [top] level of individual scores the variability can be seen with the eye" (p. 415). Thus, she questions whether

statistical measurements, in all cases, increase reliability: “With variance this large one must ask whether the sample means in these studies (my own included), are reasonable estimates of the population means, that is, are we accurately describing the language performance of the population?” (p. 418). The data collection procedures greatly impact this question as well; many studies have shown that when people are in the process of acquiring a grammatical structure or morpheme, their use of that structure of morpheme fluctuates in ways that cannot be expected (see Gass and Selinker, 2000). Therefore using any one-time test to assess morpheme acquisition will always have a high risk of being inaccurate.

The second part of Rosansky’s study was to compare cross-sectional and longitudinal studies, and she did this by choosing one of her six subjects and analyzing his speech at one particular time and comparing it to the acquisition order obtained over the entire 10 months of her study (using samples taken each month). The cross-sectionally-obtained and the longitudinally-obtained data did not correlate statistically; further, Rosansky found that, cross-sectionally, “the rank of the morphemes for each of the one month intervals appear[ed] to fluctuate from month to month” (p. 422) and did not resemble the longitudinal order. Since “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” Rosansky’s findings cast serious doubt on the validity of cross-sectional morpheme acquisition studies. Rosansky questions whether the subjects in the studies on morpheme acquisition (her own included), are representative of the whole population of learners and states, “This is a serious methodological

question for L2 researchers to resolve" (p. 418). This statement identifies a major weakness of the morpheme studies, in that they were limited by their methodologies: case studies elicit naturalistic data but only with very few subjects. Cross-sectional studies must limit the amount of data collected from a large number of participants, making it elicitation-based and therefore representative of a different kind of language, language that is not necessarily naturalistic.

Krashen (1977) attempted to confront some of the criticisms of the morpheme studies by reviewing all of the studies that had been done up to that point that were available to him, which included both published research as well as several unpublished doctoral dissertations and MA theses. Krashen divided these studies into the four categories of child L1, child L2, adult L2, and adult agrammatics (people who have a selective syntactic deficit) basing the categories on what groups of people each study focused on. He further divided those categories into *individual longitudinal*, *individual cross-sectional*, *grouped longitudinal*, and *grouped cross-sectional*. (It should be noted that only one study "fit" into his *grouped longitudinal* category—the child L1 study by Brown (1973) which should have been categorized as *individual longitudinal*, as Brown only looked at three children.) In this study, Krashen (1977) combined the results of these studies in order to generalize to more widely-reaching findings. Although most of the studies were largely dissimilar in design (many looked at different morphemes, focused on different variables, collected language differently, etc.), Krashen posited a "natural order" for morphemes in English SLA (See Figure 2).

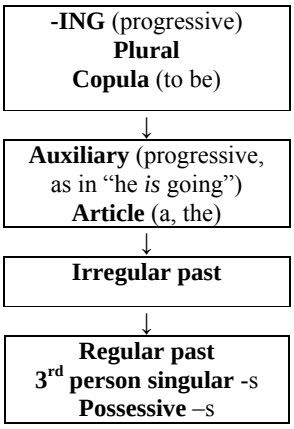


Figure 2. Krashen's (1977) 'Natural Order' for ESL, from Krashen (1982), p. 13

Krashen organized this natural order in groups—so one group of morphemes is likely to be acquired before the next, although he made no claims as to an invariant order within the same group. This natural order, while based on a variation of studies (a few published, some published and widely criticized, several unpublished), has nevertheless become a major part of SLA theory, and Krashen's "Natural Way," although not entirely based on the natural order, is a widely-used teaching methodology. The "natural order" is, in many ways, the high point for the morpheme studies, as few morpheme acquisition order studies were carried out after this point.

More Recent Studies

The order of acquisition posited by the morpheme studies has become an important part of SLA research, despite the questions raised about their methodologies. Larsen-Freeman and Long (1991), in fact, state that despite the limitations of the morpheme studies, conclusions can be drawn which support the existence of common acquisition orders in interlanguages (ILs). Indeed, the morpheme studies' place in

SLA theory seems secure, based on the most widely-used SLA textbooks, especially Larsen-Freeman and Long (1991), Ellis (1994), and Gass and Selinker (2000), and studies which have begun to appear more recently (Wei, 2000a, and Tono, 1998, for example). However, few recent studies which look at morpheme acquisition have been carried out; instead more specific studies examining other grammatical items such as tense/aspect (Salaberry, 2000) and affixes (Mochizuki and Aizawa, 2000), for example, or broader studies which look at sentence order acquisition (Pienemann, 1984, 1989) began to take place.

The reasons for a relatively stable acquisition order, however, are still unknown. Three categories have emerged which attempt to provide an explanation. The first group is strictly nativist, believing that innate language mechanisms present in the brain are responsible. The second looks to the morphemes themselves, stating that a combination of grammatical form and semantic complexity can explain how easily a morpheme is acquired. The third considers that a combination of both biological endowment and morpheme complexity can explain the common order. The work of Pienemann (1984, 1989) is the most well-known of this third group, and does not look specifically at morphemes but instead focuses on developmental sequences of word order and question formation in order to come to hypotheses about learnability. While the number of recent studies in the first two categories is not extensive, two studies (Wei, 2000a, 2000b; Goldschneider and DeKeyser, 2001) posit how grammatical complexity might explain why some morphemes seem to be acquired earlier than others, while a third (Tono, 1998) uses the recent technological

developments of a computer-based corpus as his methodology in order to come to a morpheme order of acquisition.

Pienemann's research on learnability and teachability started with his work with the Zweitsprachenwerb Italienisher und Spanischer Arbeiter (ZISA) project in Germany (Larsen-Freeman and Long, 1991). This project, which started in the late 1970s, was made up of a major cross-sectional study of 45 adults and a two-year longitudinal study of 12 adults that looked at German as a second language (GSL) acquisition by speakers of Spanish and Italian. The major focus of the project was on word-order, and the project discovered a set of constraints that "are claimed to control all developmental sequences in ILs, not just word order, and to work for any SL, not just GSL" (Larsen-Freeman and Long, 1991, p. 275), and formed the basis for the Multidimensional Model. The Multidimensional Model is especially useful because it measures language acquisition based upon two major axes: First, the developmental axis, which measures which stage of development a learner is at in their acquisition of grammatical sequences, word order, etc., and second, the variational axis, which measures how a learner's own language patterns match up to target language patterns. Thus it takes into account both the level of a learner as well as the variation in his/her speech. While this model was initially applied only to word order, it has been used successfully with a variety of other language features, including English morphemes (Ellis 1994).

Such research by Pienemann led to his Teachability Hypothesis (Pienemann 1984), which predicts that a learner must be at a certain stage of learnability before

he/she will be able to acquire a given grammatical structure. Even natural exposure to a grammatical structure will not lead to acquisition, unless the learner is at the appropriate stage. The Teachability Hypothesis has important implications for teaching, of course, but its relation to understanding morpheme acquisition is also significant. According to Pienemann, morphemes can fit into a developmental framework, and they way they fit in will depend on their relative complexity. Ellis (1994) explains this complexity quite clearly:

> For example, the plural *–s* and the regular past tense *–ed* morphemes are seen as 'local' because they involve simple additions to the constituent to which they belong. However, 3rd person *–s* is 'non-local' because the function it performs (marking subject-verb agreement) involves the learner in relating two constituents, the subject noun phrase and the verb. (p. 383)

Thus "non-local" morphemes are more complex than "local" morphemes and occur in later developmental stages.

Pienemann was further able to use the two axes of his Multidimensional Model to divide morphemes into two classes of linguistic features—developmental and variational, in order to "better predict and understand the source(s) of learner errors" (Larsen Freeman and Long, 1991, p. 282). He found that "whereas the effects of instruction are subject to processing constraints where developmental features are concerned, this is not the case with variational features (Larsen Freeman and Long, 1991, p. 282). In other words, morphemes which fit under the developmental class of features can be taught, while other morphemes, those which fit under the variational class, are impermeable to instruction. Pienemann's work, in many ways, bridges the nativist explanation of the common morpheme order of acquisition with the

explanation of the morphemes themselves being responsible for the order by claiming that morphemes can be classified into two types.

One of the most recent studies that look specifically at morpheme acquisition was carried out by Wei (2000a) with 60 low-level adults learning English as an L2 from Chinese and Japanese L1s. Wei hypothesizes that morpheme acquisition order can be predicted through morpheme type. Morphemes in his study are divided into four groups: content morphemes, which are "directly elected by the semantic and pragmatic content of the speaker's intentions" (p. 106), and three kinds of system morphemes, which are typically "not activated by the semantics and pragmatics of the speaker's intentions" (p.107). His data were elicited through "near-natural"[1] (p. 123) conversations as well as two picture description tasks, all of which were targeted toward eliciting the morphemes in question.

Once the data were collected, they were analyzed through obligatory occasion analysis. On occasions where a native speaker would include a morpheme but the subject did not include it or included it incorrectly, it was counted as an error. Wei claims he is very aware of the problems associated with obligatory occasion and error analysis, but states that "in spite of these potential problems, [his] data are rich and extensive enough to be suitable for statistical analysis" (p. 124). Wei's analyses do show that certain morphemes are acquired before others in a way that can be predicted by morpheme type, in accordance with his hypothesis.

[1] Wei does not describe what "near-natural" conversations actually means in his data elicitation, only noting that "the investigator guided each conversation along the lines of designed questions," which sounds as elicited as it does natural.

Goldschneider and De Keyser (2001) look at twelve morpheme studies carried out before the year 2000 and hypothesize whether five morpheme factors can account for much of the variance found in acquisition orders. They examine many more studies than the twelve they are able to use, noting that a lack of methodological similarity is unfortunate—many of the studies look at different sets of morphemes or grammatical structures, examine different languages, use incomparable instruments, or concentrate on different modalities. However, why so many researchers carried out studies with so much methodological variation is unknown. Goldschneider and De Keyser, for reasons of generalizability, focus on twelve studies that all use English as the L2, consider at least six of the same grammatical morphemes which are gathered through oral production data, and all of which score these morphemes in occasions of obligatory context. Included in the twelve studies they examine are Dulay and Burt (1974), Bailey, Madden and Krashen (1974), and Rosansky (1976). The pooling of these studies combines data from 900 learners and allows better generalizability than each study could alone, but the criticisms against many of the studies Goldschneider and DeKeyser use (including the three immediately above) are not taken into consideration before Goldschneider and DeKeyser analyze these data statistically.

The results of these statistical analyses show that a combination of five factors (perceptual salience, semantic complexity, morphophonological regularity, syntactic category, and frequency) likely account for most of the variation found in the acquisition orders, confirming Goldschneider and De Keyser's main hypothesis. This study, then, gives support to the early morpheme studies as well as a common

morpheme order of acquisition. Goldschneider and DeKeyser (2001), noting that there are problems intrinsic in those early studies, call for various ways of defining and measuring acquisition in the field of SLA, although they do not offer any suggestions of how this might be done.

Although Tono (1998) defines and measures acquisition in the same way as the morpheme studies (90% suppliance in obligatory contexts), he uses a methodology not used in any other study—computer corpus-based language analysis. This type of analysis is relatively new and combines two of the most important factors in acquisition order data collection: naturalistic data and a large number of participants. Tono (1998) looks specifically at the same eleven morphemes as Dulay and Burt (1974) in 3000 essays by Japanese students aged 13-18. These written data are entered into a database which can then be searched through tagging schemes. These tagging schemes assemble the correct as well as the incorrect forms of those morphemes, which then must be manually tagged. Tono also manually checks for omission or misinformation errors.

Tono (1998) specifically wonders how his resulting order of acquisition will compare to Dulay and Burt's (1974), which is surprising considering the extensive criticism that was published in response to this study. This demonstrates, however, that despite these major criticisms, Dulay and Burt (1974) still stands out as a having major importance in SLA research. Tono's initial hypothesis is that his order of acquisition will be similar to Dulay and Burt (1974), but this is not fully supported as three of the eleven morphemes are found to differ significantly, as determined by a

Spearman rank order correlation. The most important aspect of Tono's study is his methodology, which shows "the possibility of verifying available SLA findings with computer learner corpora" (p. 132). This not only increases the opportunities for checking findings from earlier studies, but also makes new studies which can look at more language (both from a larger number of learners and over a longer amount of time) possible.

Morpheme Acquisition and Classroom Task

Most morpheme studies have attempted to find orders of acquisition and posit theories as to why the order might exist. Fewer studies, however, have looked particularly at the context that the language occurs in and how morpheme presence or absence might change depending on the setting or the task at hand. If a morpheme is present in obligatory contexts within some tasks and not in others, or if the percent accuracy differs in different kinds of classroom language, this would certainly lead to questions about any stable order of acquisition or accuracy. For example, classroom activities involve very different tasks and very different kinds of language within those tasks. Some activities might require students to memorize sentences or passages, with a model that would include correctly filled obligatory occasions for all necessary morphemes. Other activities might involve students simply talking about their weekend, thus leaving it up to the students as to what topic and language they will use.

Four studies—Larsen-Freeman (1975), Perkins and Larsen-Freeman (1975), Pica (1983) and Leow (1998)—have looked at grammatical morphology and how different types/amounts of exposure to the morphemes or how different task

requirements might change morpheme presence or absence in obligatory contexts. The cross-sectional study by Larsen-Freeman (1975), which was explained in some detail above, looks at five tasks (including the BSM, which was considered one of the tasks) and does not find major differences in the morpheme orders of difficulty that each produced. The reading activity in Larsen-Freeman's study has a slightly different order, but her results, overall, were considered supportive of a stable order of acquisition.

Published that same year was Perkins and Larsen-Freeman's (1975) research, carried out in order "to determine if informal learners of ESL had the same acquisition order of morphemes as formal learners have been found to possess" (p. 237). They also wondered, for students receiving formal classroom instruction, "what would happen to the established order if only certain of the grammatical morphemes were to be explained and drilled" (p. 238). At this time, there was not yet a regulated way to rate the level of learners, but from Perkins and Larsen-Freeman's description, their "informal" learners seemed to be near to a very beginning level, while their "formal" learners were probably at a low-intermediate level. The researchers elicited their data through tests, and the different groups were given different tests. However, there are difficulties with the data from the "informal" learners, not only because their participation in the study was "non-compulsory" and all but two dropped out, but also because "they could not understand or produce English sentences" (p. 239). Therefore Perkins and Larsen-Freeman are not able to answer their first research question about whether informal learners would have the same acquisition order as formal learners;

instead they basically had to dismiss this part of their research data. Among the "formal" learners, tests were administered twice, with a month between administrations. Their results show that, with the exception of the possessive morpheme, there is "very little difference in the ordering . . . from time 1 to time 2 . . . this suggests to us that instruction does not radically alter order of acquisition" (p. 241).

Pica (1983) also questions how different conditions of exposure to the English language might affect an order of acquisition. Her study looks at 18 adults from Spanish L1 backgrounds and divides them into three groups, each with six students. The three groups include: "instruction only," and data were collected from subjects in Mexico City; "naturalistic," whose subjects' only exposure to English was in the English-speaking community of a city in the US; and mixed, where the subjects "exposure to and conversation with English speakers came from both classroom and textbook instruction and the wider community" (p. 472). Pica collected data through "hour-long audiotaped conversations between each subject and the researcher" (p. 473) and the conversations revolved around personal information of the subjects and were controlled more by the subjects than by the researcher. The data were then transcribed and analyzed for ten morphemes' (the progressive, plural, singular copula, progressive auxiliary, article, past irregular, past regular, 3rd person singular, and possessive) suppliance in target-like occasions. Target-like occasion analysis differs from obligatory occasion analysis in that it takes overuse into consideration.

In Pica's data analysis, individual scores were first calculated, and then all of the scores of the six members of each group were computed to form an average. Her results show similar production errors in all three groups, as well as "statistically high correlations . . . among the three groups of subjects with regard to rank order accuracy for grammatical morphology" (p. 465). Thus her results also support the idea that the common morpheme order is not due to setting or type of exposure to English. Therefore, it must be due to something else, which could provide further support for innate language mechanisms being present in the brain and used in SLA.

No known studies in ESL have looked specifically at classroom task to determine if morpheme presence or absence might differ depending on the amount of language support the teacher provides. One study, which looks at Spanish as a second language, however, provides insight towards such a study. Leow (1998) looks at 88 adults learning Spanish as a second language in three weeks of formal instruction through a "cognitive attentional framework." This framework is basically a "focus on form" viewpoint, a teaching strategy where attention is brought to a grammatical structure in the hopes that this attention will help learners' acquisition of the structure. Leow investigates just one type of Spanish grammatical morpheme, "the irregular 3rd person singular and plural preterit forms of stem-changing *-ir* verbs" (p. 52). Specifically, Leow wonders how the amount of exposure (through single or multiple presentations by the teacher in a classroom) and the type of exposure (through teacher-centered or learner-centered tasks) affects these learners' development. In Leow's study, four beginning-level college Spanish classes are each given a different amount

and type of exposure to the grammatical morpheme in question: 1) single teacher-centered exposure, 2) single learner-centered exposure, 3) multiple teacher-centered exposure, and 4) multiple learner-centered exposure. Leow collects data through different types of tasks including a cross-word puzzle (as the learner-centered task) and a post-test after teacher instruction on the grammatical forms (as the teacher-centered task), both of which contain the same number of possible correct answers. While Leow does not attempt to calculate an order of acquisition or accuracy of any kind, his results are more classroom-based. His findings suggest "beneficial effects of both multiple and learner-centered exposures to morphological forms" (p. 49).

Although Leow (1998) looks at a different language than English, his study looks at classroom task similarly to the way I view it, in the sense of "teacher-centered" and "learner-centered" tasks or activities. Other recent research on task difference in the classroom has lead to various definitions of what a task actually is or can be considered. Ellis (1994), for example, defines a task as follows:

> In practice [task] appears to refer to the idea of some kind of activity designed to engage the learner in using the language communicatively or reflectively in order to arrive at an outcome other than that of learning a specified feature of the L2.
> (p. 595)

He adds that by other definitions, task can be seen "as referring to form-oriented as well as meaning-oriented activities" (p. 608). Coughlan and Duff (1994), looking at task from a more research-oriented perspective, distinguish between 'task' and 'activity':

> A task, we propose, is a kind of "behavioral blueprint" provided to subjects in order to elicit linguistic data. In the realm of SLA, these blueprints, or research

> tasks, are motivated by a set of research objectives . . . and their selection is usually constrained by several practice considerations. An activity, by comparison, comprises the behavior that is actually produced when an individual (or group) performs a task. It is the process, as well as the outcome, of a task, examined in its sociocultural context. Unlike a task, an activity has no set of objectives in and of itself—rather, participants have their own objectives, which act according to these and the researchers' objectives, all of which are negotiated (either implicitly or explicitly) over the course of the interaction. (p. 175)

In terms of the Lab School, the above definition can fit quite nicely when we replace "researcher" with "teacher." Therefore, a classroom task can be viewed as a blueprint that is motivated by a set of objectives that the teacher or the ESL program has for the students. An activity, conversely, includes such a task but can also include a lot more: the teacher's set-up, practice within that set-up, the directions on how to carry out the task, the students' own participation and interaction in completing the task, and the wrap-up or review after the task is completed or time runs out.

In summary, several previous studies have looked at morpheme acquisition and morpheme accuracy, and others have looked at classrooms and how type of language exposure might affect morphological forms. The Lab School project offers a setting where these different research questions can be combined, through longitudinal data collection and many diverse L1 backgrounds. The question as to whether there is an invariant order of morpheme acquisition for English learners is still not definitively known, but the large amount of research on the subject should not be disregarded merely because of methodological criticisms. So many studies over the last 30 years have been carried out on this subject and there are still questions from those studies that need to be answered.

Research Questions

Recent studies looking specifically at the fourteen morphemes examined by Brown (1973) have not been done, mainly because of methodology limitations. Longitudinal case studies can only look at a few learners and are therefore not generalizable, while cross-sectional studies are forced to use instruments to collect language over a short amount of time, making them not reliably generalizable either. Major generalizations, however, have been drawn, which makes more research combining the best of these methodologies necessary. The ideal study for morpheme order of acquisition would be longitudinal and would include a variety of participants from different L1 backgrounds. A case study on one learner (in a setting where such a larger study could be done) could be a beginning to a larger study, and this is the project which I have carried out, using the Lab School classroom database.

Few studies in the morpheme acquisition area of SLA have looked at adult participants just beginning to learn English as a second language, which is the population of learners at the Lab School. Beginning-level adults are, on the whole, largely underrepresented in SLA research because of the challenges involved in data collection. The Lab School project is the first of its kind to focus on the very early levels of ESL acquisition, and will allow many commonsensical ideas about adult SLA to be tested. Therefore, a morpheme study using this population of learners can finally be carried out, and I have started such a study through research on a single learner from a Chinese L1 background. I have chosen to look at the 14 morphemes examined by Brown in order to go back to the very beginning of the morpheme studies,

to "start over," in a way, while keeping in mind the previous research that has been done (See Appendix A). My research interests, in general, have revolved around beginning-level learners, beginning-level classrooms, and how classroom task may affect the presence or absence of grammatical morphemes. My research questions are as follows:

1) What morphemes (of the fourteen examined in Brown, 1973) are present in the speech of an adult learner from a Chinese L1 background, at the very beginning stages of English language acquisition (Level A)?
2) Does morpheme presence or absence change as the learner progresses to higher levels (Levels B and C) of English classes?
3) How does task (as defined on page 38) affect morpheme presence or absence?

Chapter III: Method

Setting

This case study uses data from The Lab School, which is a longitudinal project at Portland State University that looks specifically at beginning-level adult immigrants learning English as a second language in the United States. The Lab School consists of two classrooms where, in conjunction with Portland Community College (PCC), Levels A through D are taught (see Appendix C) from 9 AM to 12 PM four days a week. Six video cameras and two microphones of high quality (allowing much of the students' emergent language to be captured) are placed around each classroom so every student is visible and much student language is audible, even during noisy classroom activities. Further, the teacher and two students wear lavaliere microphones during every class. The students who wear the microphones are chosen randomly throughout each 10-week term, and on average, each student in the class wears a microphone two to three times per term. When a student wears a lavaliere microphone, he/she is also the primary focus of one of the six video cameras. Therefore these students and their partners can be heard and seen with exceptional clarity. Often what they are reading or writing can also be viewed by the camera.

Every class is recorded and archived, but only half of the classes are coded according to the project's protocol. The other half of the classes, because of budgeting constraints, are not coded at this point in time, but are still available to researchers. Coding is divided into two parts: participation patterns (the students' amount/type of

participation in the class) and activities (broken up into the prompt that begins the activity, the information used, and the language used) (Reder, Harris, and Setzler, 2003). Some of the student language in these coded classes (in particular, when the students work together in pairs) is also transcribed for research purposes.

For the first two years of the project, only Levels A and B were taught, in order to focus solely on the very beginning levels of ESL learning and instruction. In Year 2 of the project, a reading intervention was implemented, called Modified Sustained Silent Reading (MSSR). The Lab School's two classrooms both taught the same level during the same time, making it an ideal context for an experiment in teaching and learning, and MSSR "was the first experiment conducted in the Lab School. The experiment compared a sustained silent reading (modified version) approach to reading to a traditional approach to teaching reading. This experiment took place from September 2002 through August 2003" (NCSALL, 2004). In Year 3 of the project (September 2003 to August 2004), the Lab School expanded the levels that it offered, and Levels C and D were also taught. Therefore, there were no longer paired classrooms, but Levels A and B were taught at the same time (on Mondays and Thursdays), and Levels C and D were taught at the same time (on Tuesdays and Fridays).

Participants

In this case study, I wanted to focus on one learner whose first language is Mandarin Chinese, because this is the language I have studied most recently. This student was chosen first by age; I wanted to look at a student who is younger than 35

in order to avoid a small group of elderly Chinese women who started in Level A but never progressed. I also chose my participant based on how long she was in Lab School classes, preferring that she attended for at least three terms, including both Levels A and B. I also wanted to look at a student who participated in the Labsite Student Study (LSS), a side study in conjunction with the Lab School project, which conducts in-home interviews and language assessments in participants' first languages.

At this point, one young Chinese student known as Abby[2] (her nickname), was beginning to stand out as the best choice for this study. Not only was Abby in Level A for one term and Level B for two terms, but she has since continued with classes at the Lab School and attended Level C for four terms (only three of which were recorded). It should be noted that it is common, even normal, for students to stay in the same level for more than one term; not moving on to the next level immediately is not considered "failing" the term in any sense. The volume and clarity of Abby's voice and her willingness to participate in class made me feel confident that she would be an interesting student to look at in this study. My research interests in this study require that my participant progressed into higher ESL levels and my data are, of course, influenced by this choice. My findings will not be representative of the type of student, who, for many possible reasons, does not progress into higher ESL levels.

Abby started Level A in Fall 2002, the same time that the MSSR intervention was implemented. She moved to Level B in Winter 2003, stayed in Level B in Spring 2003, and moved to Level C in Summer 2003. At this time, however, Level C classes

[2] Although all of the students in the Lab School have signed consent forms, names have still been changed to further protect the students' privacy

were not being recorded, so we do not have data for Abby's first term in Level C. In Fall 2003, Level C classes started being recorded, and therefore we have data for Abby in Level C for Fall 2003, Winter 2004, and Spring 2004. However, her attendance became somewhat sporadic in Level C and therefore she did not wear the microphone or sit next to the microphone as often as she did in Levels A and B, which was up to ten times in one term. On average, there are only one or two classes per Level C term where Abby wears or sits next to a microphone.

As a native speaker of Chinese, there are several issues with the fourteen morphemes[3] I looked at which play a role in their presence or absence in obligatory contexts in Abby's speech. Grammatical differences between English and Chinese are widespread. For example, time is expressed rather differently in that verbs are not morphologically tensed. In order to express the past tense, surrounding words like "yesterday" or "last year" would be used instead of a change in verb form. There are also numerous phonological differences. Chang, in a chapter on Chinese speakers in *Learner English* (2001), states,

> The phonological system of Chinese is very different from that of English. Some English phonemes do not have Chinese counterparts and are hard to learn. Others resemble Chinese phonemes but are not identical to them in pronunciation, and thus cause confusion. Stress, intonation, and juncture are all areas of difficulty. In general, Chinese speakers find English hard to pronounce, and have trouble learning to understand the spoken language. (p.310)

In addition to the above-mentioned grammatical and phonological differences between Chinese and English, word-final consonants tend to be especially difficult for Chinese learners to pronounce. There are very few word-final consonants in Chinese, limited

[3] See Appendix A for definitions and description of these morphemes.

to the nasals /n/ and /ŋ/ in most areas where Mandarin in spoken, and the liquid /r/ (only in China). Further, "In the three pairs of stops /p/ and /b/, /t/ and /d/, /k/ and /g/, the unaspirated group /b/, /d/, and /g/ are voiced in English but are on the whole voiceless in Chinese" (Chang, 2001, p. 311). Therefore the past regular *–ed* morpheme is especially challenging for Abby to pronounce, as well as the three morphemes that end in –*s* (the plural, the possessive, and the 3rd person regular). The progressive –*ing*, as expected, does not cause any problems in pronunciation.

Data Collection

Once I chose Abby as the student whose language I would analyze in this study, I then searched for all class sessions when Abby wore a microphone or sat next to someone wearing a microphone (which also provides high-quality audio). Some of these class sessions were coded by Lab School graduate research assistants (GRAs) which made the parts that I was interested in easier to find. When GRAs code a class, we view the class on two different levels. First, we look at what is called the participation pattern (PP), or the classroom formation. The PP describes what the teacher and the students are doing—are all of the students looking at and listening to the teacher (this PP is called "teacher-fronted")? Are the students talking in pairs or groups? Are the students standing up and talking to different students and/or the teacher in some uncontrolled way (the PP called "free movement")? GRAs have a choice of eight PPs when coding[4], but the most student language typically occurs in the PPs of pair, free movement, and group. Pair and free movement usually consist of

[4] All of the possible PPs are: *teacher fronted, student fronted, pair, group, free movement, individual public, individual private,* and *other*.

just two students talking to one another at a time, while group can contain three to seven students. Of course, the more students there are at a table, the more difficult they all are to hear; the "group" PP is predictably the most challenging and to transcribe, and contains less detail by necessity. Therefore, I limited my data to only pair and free movement PPs.

In my two years of work as a Lab School GRA, I watched close to 45 class sessions and transcribed more than 900 minutes of pair, free movement, and/or group activities. This has given me a wide range of experience with viewing and understanding the beginning-level ESL classrooms at the Lab School. Pair and free movement activities in these ESL classrooms have very different kinds of language than teacher-fronted activities, for example, so by limiting my data to pair and free movement activities, I am also limiting my data to a certain kind of classroom language. This kind of classroom language occurs when students are talking to one another, with or without teacher participation, and typically includes a lot of repetition, repairs, and non-verbal information. Therefore, the data in this particular study are mainly representative of Abby's interactive or conversational data, although they also include some activities when she was working alone while most of the class was working in pairs. Thus these data do not include many of the most teacher-supported classroom moments, that of when students are repeating directly what the teacher has just said, such as times when teachers have students practice pronunciation.

Once I knew which student I would look at, I did a search for all of the days that Abby either wore the microphone or sat next to a student wearing a microphone. I

did this by first using a computer program called ClassAction Query, one of several computer programs created in-house specifically for Lab School data, and then double-checking the information it brought back by hand in order to make sure I didn't miss any pertinent classes. The Query program searches through all of the coded classes for a range of different features that can be chosen by the user. It also reads from a separate database which contains information about which students wore the microphone on which days and who their partners were, as well as a variety of other basic information about each class. In Query, I chose simply Abby's speaker ID and indicated that I wanted all days when she wore a microphone and/or sat next to someone wearing a microphone. Query then searched through the information from this database and came back with seventeen different days:

Level A (Term 1)
September 26, 2002 (coded and partly transcribed)
October 3, 2002
October 7, 2002 (coded and partly transcribed)
October 28, 2002 (no pair or free movement activities)
Level B (Term 2)
January 7, 2003
January 10, 2003
January 14, 2003 (coded and partly transcribed)
January 31, 2003 (coded and partly transcribed)
February 7, 2003
February 14, 2003 (coded and partly transcribed)
February 21, 2003
February 28, 2003
March 7, 2003
Level B (Term 3)
April 4, 2003 (coded and partly transcribed)
May 6, 2003
June 3, 2003
June 6, 2003 (technical problem)
Level C (Terms 5, 6, and 7)
October 14, 2003 (term 5, coded and partly transcribed)

March 2, 2004 (term 6, coded and partly transcribed)
May 4, 2004 (term 7, coded and partly transcribed)
May 25, 2004 (term 7, coded and partly transcribed)

One of the days (June 6, 2003) had a major technical problem which made it unusable; another day (October 28, 2002) did not contain any pair or free movement activities, making it also unusable for my purposes. Of the remaining days, I first set aside to use those that had been coded and transcribed. Because I would need to transcribe much of Abby's language before doing any analysis, I wanted to use first and foremost those classes that were already partly transcribed. The days when the student wore the microphone took precedence at first, but as I viewed more and more of the data, I found that there was not a major difference between days when Abby wore the microphone and days when she sat next to a microphone. This is partly because she has a strong, clear voice, but is also undoubtedly due to the quality of the lavaliere microphones.

For the coded classes, I used the ClassAction CoderTranscriber computer program (the program that Lab School GRAs use to code and transcribe the Lab School classes) to find pair and free movement activities. Then, I transcribed those activities which had not been transcribed already. Therefore, every pair or free movement activity was transcribed for all of the days that had been coded. The number of these activities ranged from one to five per day, with a day consisting of a 3 hour class period.

For the uncoded classes, I first had to decide how much data I needed for this study. I wanted to have similar numbers of days and a similar amount of transcribed

data for each of my time periods. Abby's first term in Level B contains the largest number of days when she had or was next to a microphone—ten in total. Level A only had four possible days, the second term of level B had only four as well, and with data problems each of these terms dropped down to only three usable days. Level C also had only four days, over the course of three terms, so I chose to lump all of the Level C data together since it was not the main focus of this study; I was more interested in the very first two levels of A and B. Therefore I decided to use all of the days I could get in Level A, the second term of Level B, and Level C. I browsed through all of the uncoded data for these three terms, but not for the first term of Level B, as I had enough data for that term with the coded classes. In this way, my data selection is non-random.

In order to browse through the uncoded data, I used ClassAction Toolbox (another of the Lab School's computer programs), which is the only program with access to uncoded sessions. My browsing consisted of fast-forwarding through the media, looking and listening for times when the students were talking in pairs or were standing up. I then noted the begin and end times for each pair or free movement participation pattern. After browsing through the entire class, I went back and transcribed those sections of each class session. As I transcribed, my main focus was on Abby's language, especially the fourteen morphemes. If I thought I heard a plural *–s*, for example, I rewound the media slightly to make absolutely sure that it was there or not. This saved me time during the next stage of the process, that of

going through the transcripts and noting presence and absence in occasions of obligatory context for each of the morphemes.

Data Analysis

Determining presence and absence of the morphemes

Once I had finished transcribing all of the activities I chose to use, I ended up with almost 250 minutes of transcribed talk (See Table 4). These times are approximate, however, as they include short periods of silence and times when another person is talking in the conversation. My next step was to print out all of the transcripts and analyze them for the presence or absence of the fourteen morphemes in

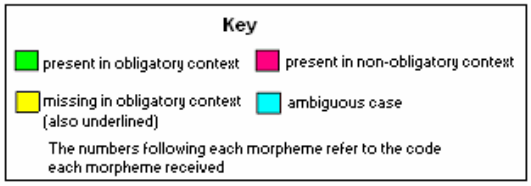
Level A (Term 1) (49 minutes total)
September 26, 2002 (19 minutes total)
October 3, 2002 (20 minutes total)
October 7, 2002 (10 minutes total)
Level B (Term 2) (105 minutes total)
January 14, 2003 (35 minutes total)
January 31, 2003 (10 minutes total)
February 14, 2003 (42 minutes total)
February 28, 2003 (23 minutes total)
Level B (Term 3) (43 minutes total)
April 4, 2003 (9 minutes total)
May 6, 2003 (30 minutes total)
June 3, 2003 (4 minutes total)
Level C (Terms 5,6,7) (53 minutes total)
October 14, 2003 (25.5 minutes total)
March 2, 2004 (13 minutes total)
May 4, 2004 (9 minutes total)
May 25, 2004 (5.5 minutes total)

Table 4. Class sessions and minutes of transcribed talk

occasions of obligatory context (see Appendix A for definitions). I did this two different times; first, I went through all of the transcripts by hand with three colors of highlighter pens. All of the fourteen morphemes present in obligatory occasions were

highlighted in green. Any morpheme which was missing in an obligatory occasion was highlighted in yellow. Finally, any morpheme which was present in a non-obligatory context was highlighted in pink. Then I began counting all of the morphemes in each transcript and marking the number present in obligatory occasions at the top of each page. I quickly realized that this form of counting was quite imprecise, however, and therefore I started over again, this time marking up each transcript on the computer and giving each morpheme a number. Those missing morphemes were not only highlighted in yellow, but what was missing was put in italics[5]. Any morpheme actually present in Abby's speech was not put in bold typeface but was just highlighted (in green or pink). Any ambiguous cases were highlighted in blue, marked with an asterisk (*) and were not counted. The following excerpt from an activity on April 4, 2003, shows how this coding was done (See Appendix B for transcription conventions):

2:35:02 <*Abby*>: you first
2:35:04 <*Juan*>: you first
2:35:13 <*Abby*: this um (1) my title is1 um (1) Life Storyies2 Two (+) Life Storyies3 Two. (2) is_ is3.5 a4 two people (+) uh Joon? and Kim (1) Joon is5 in6 the7 (+) in8 an9 interview interview at work
2:35:40 <*Juan*>: yeah?
2:35:41 <*Abby*>: no? (1) Joon (+) mm Joon yeah Joon is* (at an*/) interview(ing*) at work (+) yeah (+) she is10 (2) i_ is11 wearing12 a13 sport coat and high- (1) sport coat (+) you know sport coat



[5] Because of print quality, all morphemes in italics in my data collection are underlined in this paper. The underlining is hopefully easier to differentiate from regular typeface than italics.

While I went through each transcript, I relied on auxiliary information that had been archived with each class, such as workbooks, worksheets, books, and even information written on the board in the classroom. This information helped me decide what an obligatory context would be in these data, which was not an easy task. After much consideration, I defined an obligatory context as follows:

> An **obligatory context** depends on the situation. All of the morphemes fit into at least one of the following situations:
> - Morpheme is present in a question/situation that is provided/constrained by the teacher
> - Morpheme is present in a written source on the subject's desk (i.e. a worksheet, a book)
> - What the subject is trying to say is clear, and there are no other obvious ways to say it which could constitute using a different morpheme(s). If there is another obvious way to say it, this would be an ambiguous case.

I also had to decide how to treat repetition, as repetition is prevalent throughout the transcripts, and is used for different purposes. I chose to count a repeated morpheme if there was *at least one intervening word* between a morpheme and its repetition. For example, on September 26, 2003, Abby says:

> **Abby:** what's1 your name (1) what's2 your name"

In this case, both contractible copulas were counted as separate morphemes and separate obligatory contexts because there is at least one intervening word between the first and the second. Conversely, on January 31, 2003, Abby says:

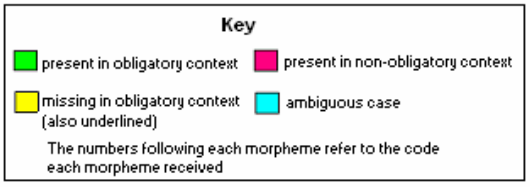
> **Abby:** what do you like to eat in13 in* the US

In this case, only the first *in* was counted as an obligatory context, the second *in* was excluded because there is no intervening word. After going through each transcript and highlighting and numbering all of the morphemes, I created a chart for each of the

twenty-five pair or free movement activities included in my data set. Each chart had several columns, one for each of the fourteen morphemes. Then I copied from each transcript all of the morphemes and their codes, fitting them in under the appropriate column. This left me with a chart for each activity that detailed the number of morphemes present in obligatory occasions, from which I could later, during the data analysis stage, determine total numbers and percent accuracy. An example chart, for April 4, 2003, is shown below as Table 5.

In	On	Art	Plur	Pos	Prog	Past Reg	Past Ir	3rd Reg	3rd Ir	Uncon Cop	Contr Cop	Unc Aux	Con Aux
in6		a4	ies2		ing12	ed41		s20		is1	is14	is61	is10
in8		the7	ies3		ing43			s21		is3.5	is15	is63	is11
in27		an9	s13		ing50			s22		is5	is16	is66	'm40
in28		a13	s23		ing62					is18	'm34		
in33		*the17*	s54		ing64					is19	'm35		
		a30	s59		ing67					are25	'm36		
		a38								is26	's42		
		a39								isare29	's44		
		the46								is31	is45		
		the51								is32	's65		
		the53								are37			
		the57								is47			
		the58								is48			
		A68								is49			
										is52			
										isare55			
										are56			
										are60			
5/5	0/0	9/12 2/0	3/6	0/0	6/6	0/1	0/0	0/3	0/0	15/18	10/10	3/3	3/3

Table 5. Example Morpheme Chart from April 4, 2003



Calculating percent accuracy

In order to determine percent accuracy, I chose to follow Brown's (1973) method, which included counting up every obligatory occasion for each morpheme on each day. Each correctly filled obligatory occasion was worth one point. If an obligatory occasion was incorrectly filled or not filled at all, I counted it as receiving zero points, like Brown. I did not choose to make correctly filled occasions worth two points in order to give one point for incorrectly supplied morphemes, as my data did not provide any evidence that an incorrectly supplied morpheme is necessarily somehow closer to being acquired than a morpheme that is not supplied at all. The total number of obligatory occasions for a morpheme served as the denominator, while the total number of correctly filled occasions served as the numerator. This resulting fraction was then multiplied by 100 in order to obtain a percent.

Determining presence and absence of the morphemes by task

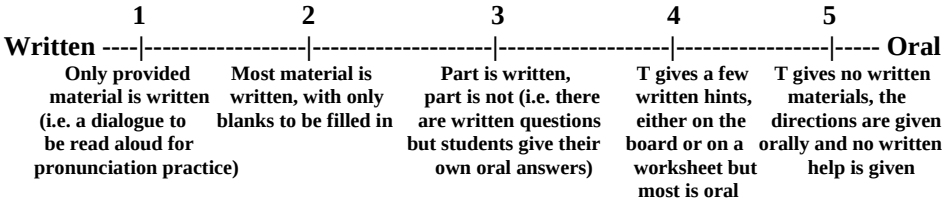
The next step of my data collection was to determine what types of tasks were represented by each of the twenty-five pair and free movement activities. This also involved more than one step. Initially, I planned to code each activity based on three parts: 1) the PIL (Prompt-Information-Language) codes from the Lab School database, 2) the goal of the activity, and 3) the amount and type of language materials provided. These continua were created based on the idea that the more visual support that is available (on worksheets, on the whiteboards, etc.) as well as the more structured a task is (more to practice certain grammatical forms than to focus on the exchanging of ideas), the more language support is thereby being provided by the teacher. The effect

of this language support on morpheme presence and absence is not entirely known, but whether the effect is higher percent accuracy or lower percent accuracy, it is interesting and important to analyze. The three continua I first planned to use in coding tasks are as follows:

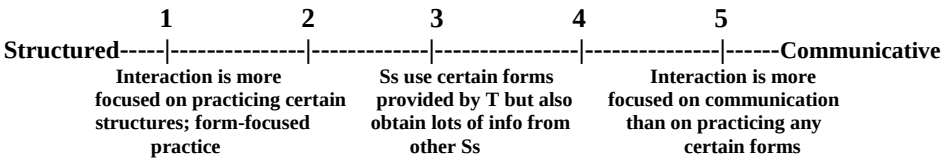
> A: PIL language codes (the amount of language support from teacher as determined by Lab School Coding Protocol). Categories include **More T Support** (T: all S: none; T: Language Frame S: Target Item; T: Question/Answer S: Target Item) OR **Less T Support** (T: Language Frame S: Question/Answer; T: Question/Answer S: Question/Answer; T: none S: all)
>
> B: Goal of activity. Categories include **Structured** (purpose of student speech is to practice a structure as given by the teacher; form-focused practice) OR **Communicative** (purpose of activity is transfer of knowledge; more meaning-based conversation practice)
>
> C: Language materials provided. Categories include **Written** (students have a written source with correct examples to use during activity, i.e. correct morphemes are present on a worksheet) OR **Oral** (students do not have a written source with correct examples to refer to)

However, when I began to code the activities and saw that sometimes Abby and her partner go "off-topic" and do different things than the rest of the class, or use different language than the teacher directed, I soon realized that the focus of my coding would have to be on what actually happens in each of Abby's interactions, and not what the majority of the class is doing (which is described by the PIL codes), nor what the teacher directed the class to do (the goal of the activity). After some adjustment, I finally developed just two continua which describe the amount of language support from the teacher as well as the core of what is happening in Abby's pair or free movement interactions.

a. Language Materials Provided Continuum



b. Core of Interaction Continuum



Based on the above continua, each activity was coded by being given a score between two and ten. The higher the score, the less supported (or more open) an activity is. Figure 3 below details the activities and their scores.

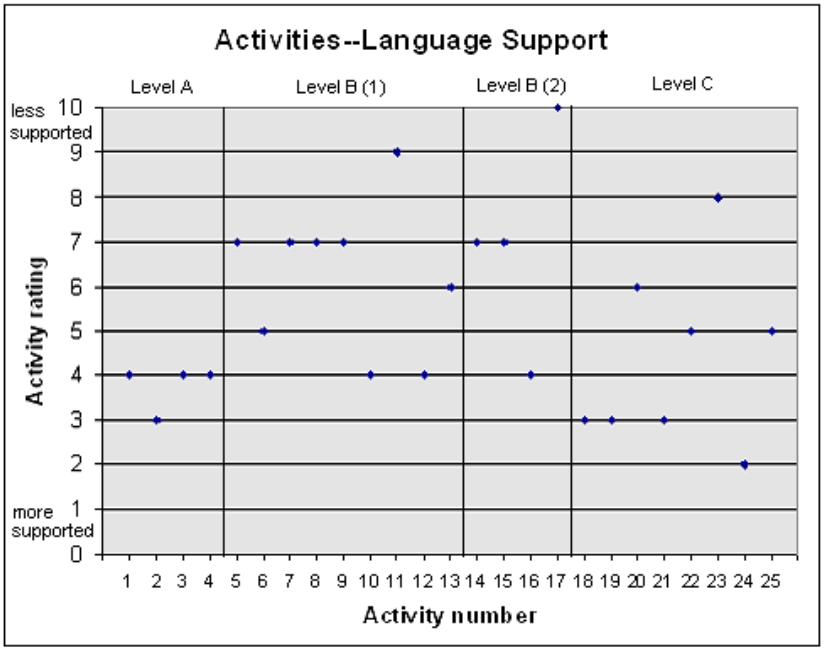


Figure 3. Language support ratings of the 25 activities

After determining the amount of language support of each activity, I had to decide what the dividing point between "more supported" and "less supported" activities would be. In order to make this distinction, I decided that the difference between an activity rating of 5 and that of 4 or 6 is minimal, and to therefore break the activities into three groups. Those 11 activities which received a rating between 2 and 4 are termed "more supported." Those 11 activities which received a rating between 6 and 10 are termed "less supported." For the purposes of task analysis only, I chose to exclude the three activities that received a score of 5, in order to take the more extreme examples and widen the distinction between more supported and less supported activities. Because I did not know at this point whether the activities that had been termed more-supported would have higher percent accuracies than those activities

which had been termed less-supported or not, I do not believe my data is biased by leaving out the three activities that received the middle scores of 5.

At this point, my data included approximately 250 minutes of talk which took place within twenty-five activities, over the course of fourteen different days, all within a time period of nearly 20 months. This constitutes a relatively large amount of data from which a broad picture of Abby's language development and morpheme use over time can be seen.

Reliability

The concept of reliability impacted this study in two major ways; first, in determining the presence and absence of morphemes in obligatory contexts, and second, in determining the amount of language support in a task. In order to make my results as reliable as possible, I went through each transcript at least twice (usually three or four times). I did this to make sure that I had correctly counted each morpheme. Despite being very careful, I probably still made a few mistakes, such as forgetting to count a morpheme, perhaps, or calling an uncontractible copula a contractible copula by accident, for example.

The other challenge in my data collection has to do with determining the amount of language support in a task. By devising two continua, I hoped to make my decisions regarding the amount of support fairly accurate, but there is still a high degree of subjectivity in this. Therefore, I asked three of my fellow Lab School GRA coworkers to look at three randomly-chosen activities and to code them using the two continua above. While their results did not agree perfectly with mine, we did all agree

which would be a “more supported” activity and which would be “less supported” activities (see Table 6). This agreement gives me confidence in reporting my findings concerning the morphemes in relation to task.

	Activity 1	**Support Rating**	**Activity 2**	**Support Rating**	**Activity 3**	**Support Rating**
Researcher	3	More supported	7	Less supported	7	Less Supported
Coder 1	4	More supported	6	Less supported	8	Less supported
Coder 2	4	More supported	7	Less supported	9	Less supported
Coder 3	3.5	More supported	7	Less supported	9	Less supported

Table 6. Task coding reliability check results

Chapter IV: Results

Introduction

In order to have equivalent amounts of data for each of the four time periods that this study encompasses, I used 14 class sessions in the Lab School corpus, days when Abby either wore a microphone or sat next to a student who was wearing a microphone. With these 14 days, I ended up with a total of approximately 250 minutes (4.2 hours) of transcribed speech over a period of 20 months (See Table 7). However, this study centers mainly on the early stages of second language learning, and thus the main focus will be the first three terms (or nine months), which are Time 1 (Level A), Time 2 (Level B), and Time 3 (Level B). The Time 4 (Level C) data, which takes place over nearly the same amount of time as Times 1-3 combined, will be primarily used for comparison and for a more complete view of Abby's language progression.

Level A (Term 1) (49 minutes total)
September 26, 2002 (19 minutes total)
October 3, 2002 (20 minutes total)
October 7, 2002 (10 minutes total)
Level B (Term 2) (105 minutes total)
January 14, 2003 (35 minutes total)
January 31, 2003 (10 minutes total)
February 14, 2003 (42 minutes total)
February 28, 2003 (23 minutes total)
Level B (Term 3) (43 minutes total)
April 4, 2003 (9 minutes total)
May 6, 2003 (30 minutes total)
June 3, 2003 (4 minutes total)
Level C (Terms 5,6,7) (53 minutes total)
October 14, 2003 (25.5 minutes total)
March 2, 2004 (13 minutes total)
May 4, 2004 (9 minutes total)
May 25, 2004 (5.5 minutes total)

Table 7. Total minutes of transcribed talk per session (repeated from page 50)

Throughout the entire length of time over which the data collection took place (20 months), all of the fourteen morphemes I followed were present at least once in Abby's speech. Some were present much more often than others. Because of the complexity of these data, the morphemes can be examined in a variety of ways, and much could be said about each.

My main research interests in this study fall into two areas: first, what morphemes are present in the earliest stages of English language learning, and second, how task affects the presence or absence of the morphemes in obligatory contexts. Because of this, my analysis will be essentially qualitative in order to describe what morphemes are present in what situations and why this might be. However, the numbers of the morphemes have certainly played an important role in the way I have chosen to view these data. A quantitative view of the morphemes provides insight

into the nature of classroom language; some morphemes are present more often in Abby's speech because of what is talked about in the classroom. Also, a quantitative analysis allows for a clearer comparison between this study and the many morpheme acquisition studies detailed in the literature review in chapter 2. Further, those morphemes that were present in higher numbers in Abby's speech are simply more interesting to look at and analyze, because their numbers allow patterns to be seen more easily over time and over task difference. Therefore the majority of my discussion of the results will center on the morphemes that were present in a variety of different contexts over time. Those morphemes that were almost exclusively present in just one kind of activity or situation will be mentioned but not elaborated upon.

The morphemes fell naturally into three groups, based on the above criteria. Group X consists of those morphemes that had at least five obligatory occasions in all four time periods (Level A, Level B (1), Level B (2), and Level C). Only three of the fourteen morphemes fit into group X: the past regular, the uncontractible copula, and the contractible copula. Group Y consists of those morphemes that had obligatory occasions in the final three of the four time periods, that is, from Level B onward. Five morphemes fit into Group Y: the preposition *in*, the articles, the plural, the progressive, and the past irregular. Group Z is made up of those morphemes that had obligatory occasions in only one or two of the later time periods, and the remaining six morphemes fit into this group: the preposition *on*, the possessive, the 3rd person regular, the 3rd person irregular, the uncontractible auxiliary, and the contractible auxiliary. Although the Group Z morphemes have more obligatory occasions in the

final two time periods, their overall numbers are still too low to result in reliable percent accuracies.

<u>Group X:</u> those morphemes that were present in all four time periods
- past regular, uncontractible copula, contractible copula

<u>Group Y:</u> those that were present in the final three of the four time periods
- *in*, article, plural, progressive, past irregular

<u>Group Z</u>: those that were present in only one or two of the time periods
- *on*, possessive, 3rd regular, 3rd irregular, uncontractible auxiliary, contractible auxiliary

Table 8. The three groups of morphemes

The Three Morpheme Groups

The following table (Table 9) shows each of the fourteen morphemes, which group they fit into, and examples of how Abby used each of them. I defined these morphemes based on information from Brown (1973), but my definitions may be slightly different from his and other morpheme acquisition research. For further information on how I defined the morphemes, see Appendix A. The most important feature to notice about Table 9 revolves around the examples of how Abby used the morphemes. Overall, those morphemes that were used more commonly in the classroom, such as example 3, "what's your birthday" were also more common throughout the 20 months of data collection, putting these morphemes in Group X. Other examples in Table 9 seem highly scripted, such as example 9, "what do you do on the weekend in Portland" or example 10, "Maria helps by making her father's lunch." As expected, these group Z morphemes were rarely used in the classroom,

being present almost exclusively in reading activities when Abby repeated a question directly from the board or read aloud from a book or worksheet. Because Abby's Level A and first term of Level B took place during the Lab School's experimental reading intervention, MSSR, these two terms include several such "after-MSSR" activities, where students typically shared something about their books with their partners or read aloud to their partners or themselves. The group Y morphemes, present in less-commonly-used formulaic chunks as well as in structured sentences, fell somewhere in the middle of these two common situations of morpheme use.

Morpheme	Group	Example usage
1) Past regular -ed	Group X	"yesterday I worked" (4-5-04, ~27:30)
2) Uncontractible copula	Group X	"this um (1) my title is um (1) Life Stories Two" (4-4-03, 2:35:13)
3) Contractible copula	Group X	"ok what's your birthday" (10-3-02, ~1:23:00)
4) *in*	Group Y	"you come to the USA in nineteen seventy-nine" (1-14-03, 1:25:14)
5) Articles *a* and *the*	Group Y	"how much a month" (2-14-03, 1:34:08) "what do you do on the weekend in your country" (1-31-03, ~46:00)
6) Plural	Group Y	how mu_ no four hours (2-3-04, 1:19:58)
7) Progressive	Group Y	"I'm working in a restaurant" (1-14-03, 1:22:55)
8) Past irregular	Group Y	"when did you come from?" (9-26-02, 1:04:48)
9) *on*	Group Z	"what do you do on the weekend in Portland" (1-31-03, ~49:00)
10) Possessive	Group Z	"Maria helps by making her father's lunch" (1-14-03, ~2:41:00)
11) 3rd person regular	Group Z	"Nancy gets up" (10-14-03, ~1:01:30)
12) 3rd person irregular	Group Z	"the time has come to stop pretending" (5-6-03, ~2:37:00)
13) Uncontractible auxiliary	Group Z	"why are you studying English" (10-14-03, 2:42:26)
14) Contractible auxiliary	Group Z	"she is (2) i_ is wearing a sport coat" (4-4-03, 2:35:41)

Table 9. Overview of the morphemes

Data over Time

Over time, I viewed these morphemes in two ways: first, in the classic way that previous morpheme studies have used, looking at each data collection period and determining orders of acquisition/accuracy longitudinally and cross-sectionally. Viewing the data this way allows the change in percent accuracy of each morpheme to be easily seen in each of the 14 data collection sessions. Second, in order to explain the morphemes more generally, I also viewed their percent accuracies by level, therefore combining all of the days in each level. This allows the morphemes to be more easily compared with one another, over time and by task.

Determining an order of acquisition/accuracy: Longitudinal versus cross-sectional

Each of the fourteen morphemes can be viewed by their percent accuracies on each of the data collection days (of which there were 14 in all). The Group Z morphemes, however, were present so infrequently in the data that viewing them over time does not reveal much about them. Their low numbers yield drastic percent accuracies: either 100% or 0%, in most cases, all based on only one or two correctly or incorrectly supplied morphemes. Viewing the other eight morphemes by each day takes into account all of the pair or free movement activities in each day and combines them to create one percent accuracy for that day. However, for each morpheme I only counted those days in which it had three or more obligatory occasions, three being the required number of obligatory occasions that Dulay and Burt (1974) used in their Group Means Method, a choice that was followed by Larsen-Freeman (1975) and Rosansky (1976). Further, I found that having only one or two obligatory occasions

does not accurately show development and, like the Group Z morphemes, results in drastic percentages of 100% or 0%.

Comment [R1]: I'm not sure how this influences my analysis and the claims I can/cannot make

By viewing the morphemes' obligatory contexts in each day, it is easy to see which morphemes were present more often in these data over time. The following set of figures shows each of the morphemes over time, by their groups. The Group X morphemes (the past regular, the uncontractible copula, and the contractible copula) are first, followed by the Group Y morphemes (the preposition in, the articles, the plural, the progressive, and the past irregular). Figure 4 shows the past regular morpheme, which includes instances of past regular verbs being used as adjectives (See Appendix A for more information). This morpheme has a rather erratic percent accuracy, moving up steadily to near 80% by Level C, but often at 0% accuracy in levels A and B.

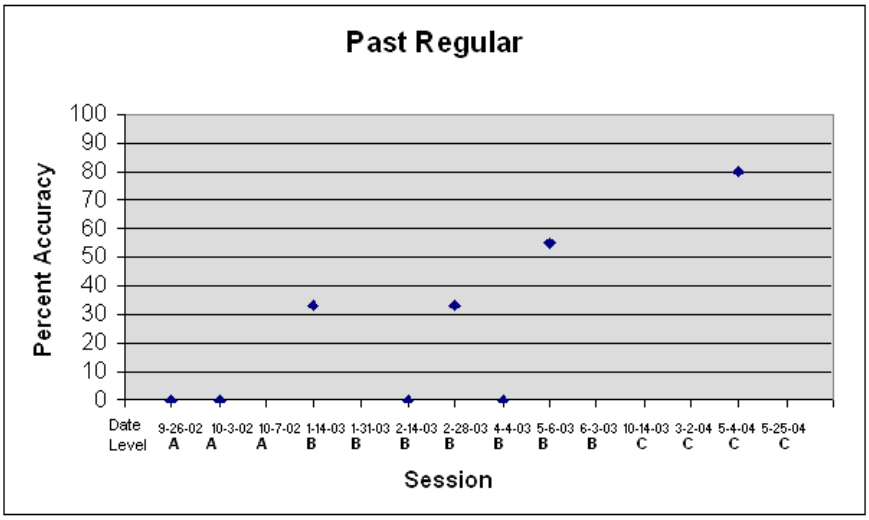


Figure 4. The past regular morpheme's percent accuracy over time, by session

The uncontractible copula, conversely (See Figure 5), stays near a much higher percent accuracy, ranging from just below 60% throughout levels A and B up to 100%.

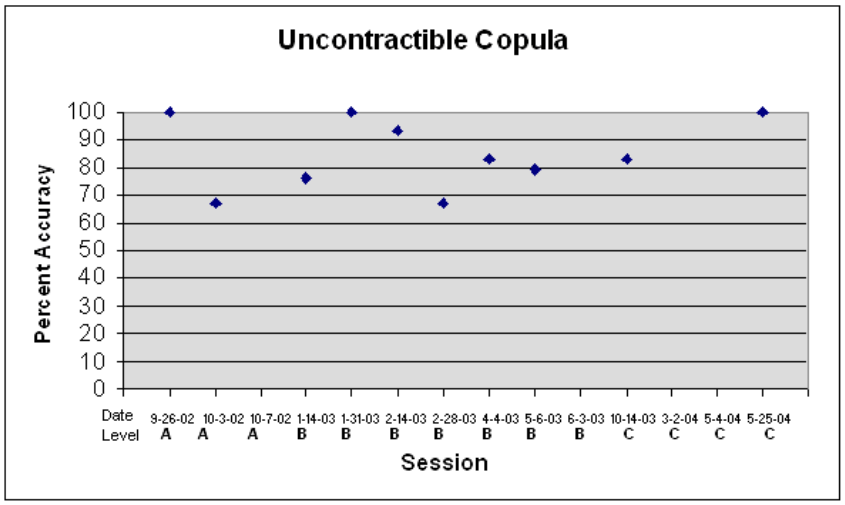


Figure 5. The uncontractible copula's percent accuracy over time, by session

The contractible copula (see Figure 6) stays even nearer to100% accuracy, only dipping below 90% twice in all of the data collection sessions. By Abby's second term in Level B, the morpheme is correctly supplied in all of its obligatory contexts.

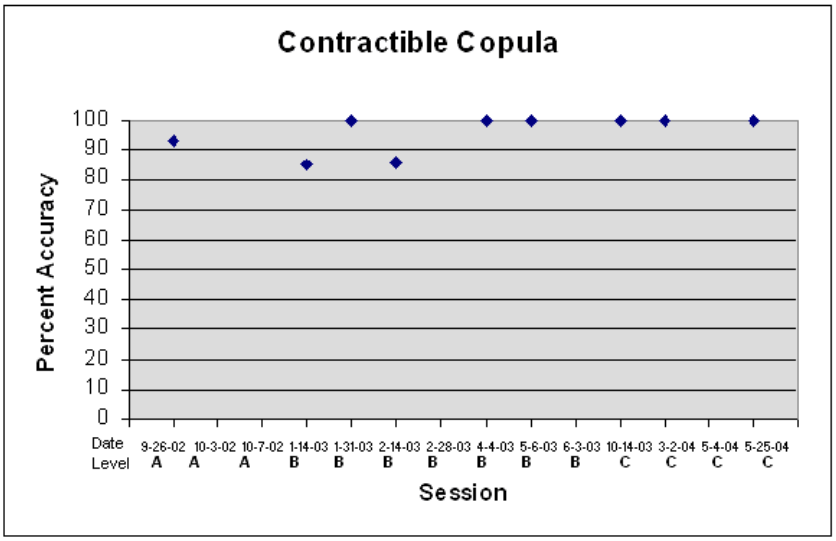


Figure 6. The contractible copula's percent accuracy over time, by session

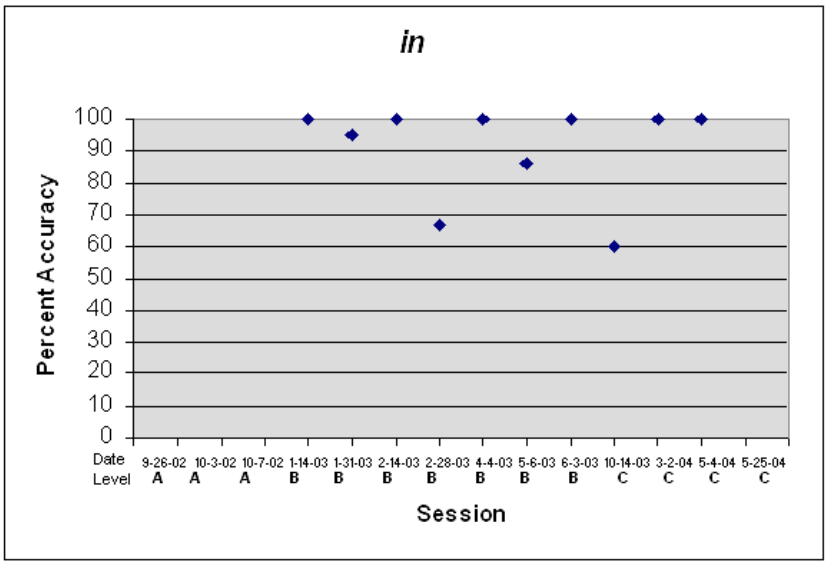


Figure 7. The preposition *in*'s percent accuracy over time, by session

Figure 7 shows the preposition *in*, which also stays near 100% accuracy. In only three sessions is its percent accuracy below 90%. By Brown's (1973) definition of acquired, which would be the first data collection session of three when the

morpheme is correctly supplied 90% of the time, *in* would be the first morpheme acquired by Abby, even though its percent accuracy dips down to 60% in a later session.

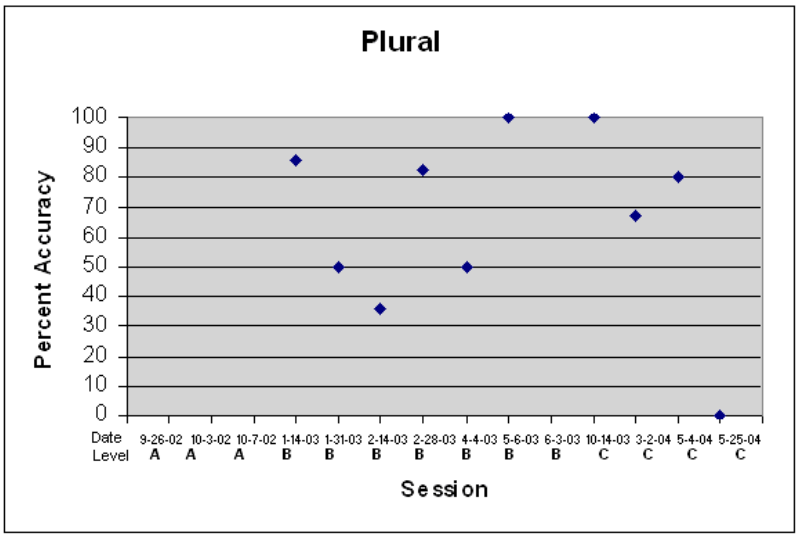


Figure 8. The plural's percent accuracy over time, by session

Figure 8 shows the percent accuracy of the plural, which is quite erratic. While the plural's percent accuracy reaches 100% in two sessions, once in term 2 of Level B and once in Level C, in the final data collection session it is at 0%. The percent accuracy of the progressive is shown in Figure 9. Like the plural, it is also rather irregular, although its percent accuracy on any day doesn't dip lower than 60%.

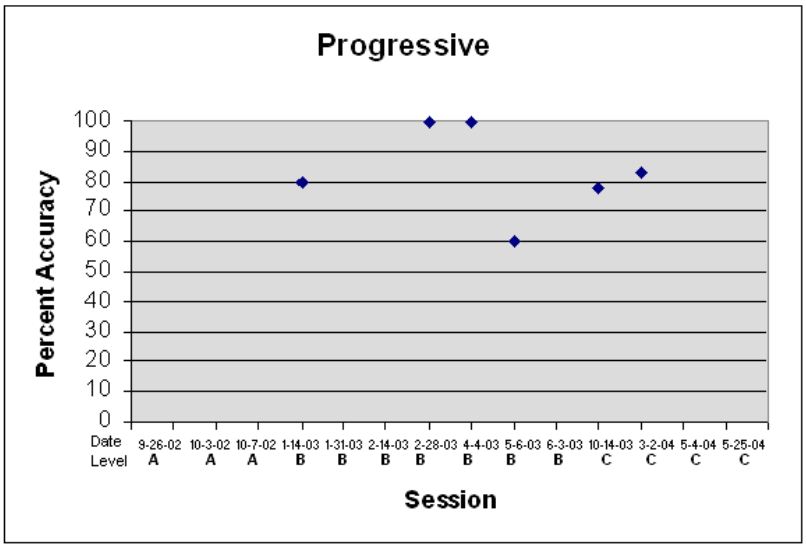


Figure 9. The progressive's percent accuracy over time, by session

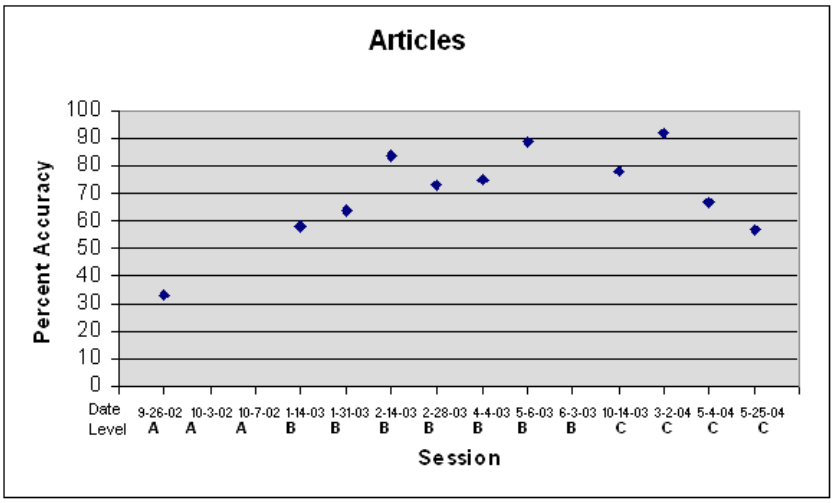


Figure 10. The articles' percent accuracy over time, by session

For the articles in Figure 10, a curve can almost be drawn, reflecting how the percent accuracy is lower both at the beginning of Level A and at the end of Level C. This almost looks like regression on the part of Abby's acquisition of articles, as in the final day of data collection, the percent accuracy is just below 60%.

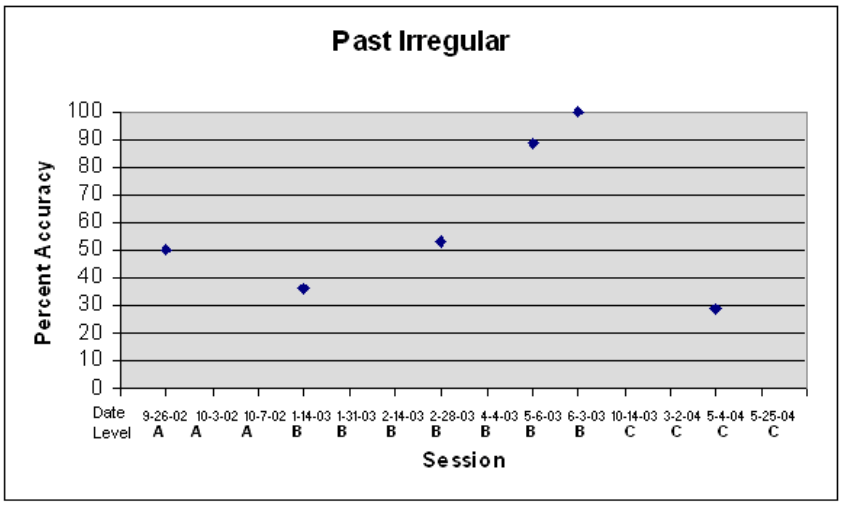


Figure 11. The past irregular's percent accuracy over time, by session

Finally, Figure 11 shows the past irregular, which was present in only six of the fourteen data collection sessions. The past irregular is also rather sporadic in its percent accuracy, ranging from 50% in Level A down to below 40% in Level B, then up to 100% near the end of Level B, and down to below 30% in Level C.

What does it say about these morphemes to have such different percent accuracies over time? One interpretation follows Pienemann's findings, as described in Larsen-Freeman and Long (1991). Pienemann discovered that morphemes in his data seemed to fit into two groups: the developmental, which can be taught, and the variational, which are impermeable to instruction. The preceding eight figures of the morphemes can be viewed in relation to these features. Some morphemes (the past regular, uncontractible and contractible copulas, and article) stay fairly stable or go up in percent accuracy over time, and this may mean that they are more receptive to instruction and may fit into Pienemann's developmental group. Other morphemes (*in,*

plural, progressive, and the past irregular) have percent accuracies that fluctuate greatly over time, which may indicate that they are less permeable to instruction and may fit in the variational group.

In terms of acquisition orders, if I were to state an order of acquisition of these morphemes, using Brown's definition, it would be as follows:

1) *in*
2) contractible copula

as these are the only two morphemes that were present in 90% or more obligatory contexts in three subsequent data collection sessions. All of the other morphemes fluctuate too much. If I were to determine an order of accuracy, looking at the morphemes cross-sectionally, this order would be very different. All of the eight morphemes from Groups X and Y are present in only two data collection sessions: January 14, 2003 and May 6, 2003. Both of these dates take place in Level B. For completeness, I also examined the Group Z morphemes on these two days and included them if they had three or more obligatory occasions for that day. Thus, the rank orders obtained on the two days (by percent accuracy) are as follows:

January 14, 2003	**May 6, 2003**
1) possessive (100%)	1) *on* (100%)
1) *in* (100%)	1) contractible copula (100%)
3) plural (86%)	1) plural (100%)
4) contractible copula (85%)	1) contractible auxiliary (100%)
5) progressive (80%)	5) past irregular (89%)
5) 3rd person regular (80%)	5) articles (89%)
7) uncontractible copula (76%)	7) *in* (86%)
8) articles (58%)	8) uncontractible copula (80%)
9) past irregular (35%)	9) progressive (60%)
10) past regular (33%)	10) past regular (55%)

There are some similarities between these two days and the longitudinal order. For example, the preposition *in* is first in both the longitudinal order and on January 14. The contractible copula and plural are near the top and the past regular is the final item on both cross-sectional days. But the rest of the morphemes' places are quite different between the two days, especially when the Group Z morphemes are added in. The possessive and the 3rd person regular are high up in the order for January 14, but are not present in the May 6 order. Similarly, the preposition *on* and the contractible auxiliary are both at 100% accuracy and at the top of the list on May 6, but are not present on January 14. If these two days were the only two days looked at in these data and I was attempting to determine an order of acquisition or accuracy, my results would be remarkably misleading. I would probably assume that the Group Z morphemes were as widely used as the other morphemes, while in fact they are not commonly used in the classroom.

A complete picture cannot be drawn even for those morphemes that are common in the classroom. A longitudinal view of the plural (see Figure 7) shows that its percent accuracy can actually be very erratic, while the cross-sectional orders locate the plural very high up, as either the first or second most accurate morpheme. These data bring up questions about the cross-sectional morpheme studies, a topic which will be further elaborated upon in Chapter 5. The next section of this chapter looks at the eight Group X and Y morphemes more generally by level, and more detail is given about their use.

Group X morphemes by level

The Group X morphemes (past regular (*-ed*), uncontractible copula (*am, are, is*), contractible copula (*'m, 're, 's*)) can also be examined more generally by level. These three morphemes were present in all four time periods and throughout the 20 months of data collection. Detailed percentages of the percent accuracies of these three morphemes by level can be found in Table 10, as well as in Figure 12 below. Overall, this view of the morphemes shows Abby's use becoming more accurate over time.

	Time 1 *(Level A)*	***Time 2*** *(Level B)*	***Time 3*** *(Level B)*	***Time 4*** *(Level C)*
Past regular	0	36.4	50	75
Uncontractible copula	90	80.4	81	94.4
Contractible copula	90.5	88.5	100	100

Table 10. Group X percent accuracy over time, by level

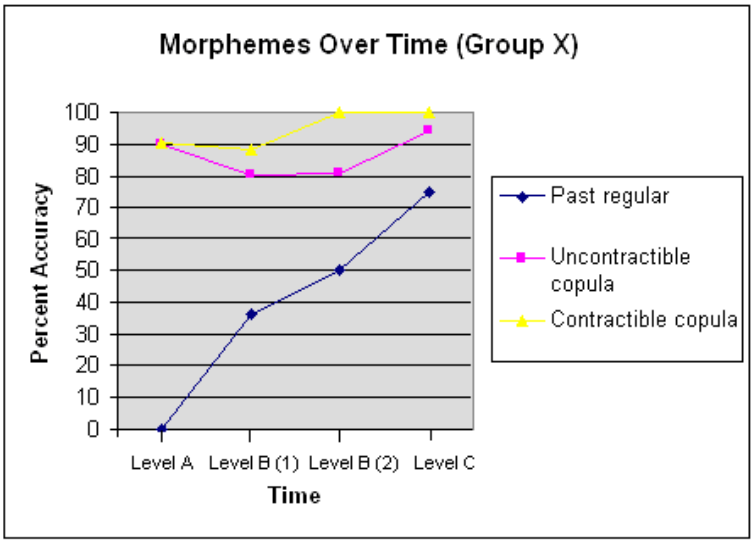


Figure 12. Group X morphemes, percent accuracy over time, by level

All of the Group X morphemes are present in formulaic chunks taught in Level A. For example, on the very first day of class, the students must ask one another the following questions:

1) What is your name?/What's your name?
2) Where are you from?
3) How long have you been here?

Therefore both the contractible copula, present in question 1, and the uncontractible copula, present in question two, are commonly used throughout this first day of class and throughout the whole of Level A. These two morphemes continue to be used in Levels B and C, especially in the form of questions and answers, but also in other classroom activities, such as in passages that are read aloud. Figure 12 above shows that, over the 20 months of data collection, the percent accuracies of both the contractible copula and the uncontractible copula stayed remarkably stable. The past regular morpheme, conversely, moved from zero percent accuracy in time 1 (Level A) all the way up to 75% accuracy by time 4.

In counting the past regular morpheme, I included instances when it was used as an adjective. Thus, the zero percent accuracy of the past regular morpheme in Level A can be traced to one question used commonly in the pair and free movement activities at the beginning of each term, as students get to know one another and practice their spoken English:

1) *Are you married?* [6]

[6] This example represents the past regular morpheme being used as an adjective. For more information on the definitions of this and the other 13 morphemes, please see Appendix A.

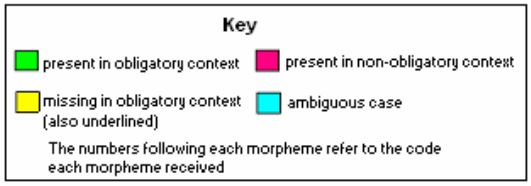
Like the above questions, this is taught in class and the teacher requires the students to ask it in one of the four Level A activities. Pronunciation issues, however, make the past regular *-ed* morpheme challenging to follow, which is why I included instances of it being used as an adjective. Further, the past regular is likely affected by grammatical issues as well, because the morpheme is not present in Abby's first language, Chinese. Chinese verbs do not change tense; instead, time is shown through surrounding words such as "yesterday" "next year" or "before."

The main reason for the change in presence of this morpheme in obligatory occasions is almost certainly pronunciation; as Abby progresses through levels, her pronunciation of word-final consonants improves. That the missing *–ed* is due to pronunciation, at least in Level A, can be demonstrated by a conversation from October 3, 2002. This conversation takes place during an activity in which students, in pairs, complete a Venn diagram which details information that is the same and different between each student. However, Abby's partner, Saleem, is a very beginning student and his speaking and listening level of English is at a much lower level than hers. Therefore, the conversation involves a lot of repetition (of both questions and answers) by Abby, as well as frequent requests for help directed at the teacher.

(1) (1:17:51 to 1:19:25)

1 Abby: are you marryed ((points to ring finger)) no?
2 Saleem: no ((shrugs))
3 Abby: ((leans forward to see what pair in front of her is writing)) mm ((laughs
and shrugs)) are you marryed? no? yes?
4 Saleem: what?
5 Abby: marryed
6 Saleem: what's that?

7 Abby: yeah oh ((laughs)) married
8 Saleem: ((laughs)) ~m i~ (+) ~m i~ no?
9 Abby: ((sighs)) <chn> ~m a r r (+) m a r r i e d~[7] *marry? are you married?
10 Saleem: ~m a~ marry ~m a~ no ~m a~ xxx no? xxx
11 Abby: teacher come here



Since in line 9 Abby actually spells out the word that she is trying to say, "married," clearly spelling the "*–ed*," it is almost certain that she is simply not pronouncing the morpheme when she asks the question "are you marry?" in lines 1, 3, and 9. In other words, she is most likely saying it in her mind but it does not come out voiced in her speech.

Throughout the activities in Levels B and C, the past regular morpheme is present between one and three times per activity, being most commonly used, still, in "are you married?" The one activity where the morpheme is used several times occurs towards the end of her second term in Level B (May 6, 2003), in an activity where Abby is reading aloud to herself from a book which is told in the past tense, and she repeats several of the verbs, practicing her pronunciation, as she reads aloud. In this activity, her percent accuracy is 50%; even when the words are directly in front of her, she only pronounces about half of the past regular morpheme occurrences. This activity includes several occurrences of the past irregular morpheme as well, of which the majority (89%) are pronounced correctly.

[7] The tildes surrounding these letters denote that the letters within the tildes are being spelled out. See Appendix B for all of the transcription conventions.

Group Y morphemes by level

The Group Y morphemes (preposition *in*, articles *the* and *a*, plural *–s*, progressive *–ing*, and past irregular) did not have enough obligatory occasions in Level A, so they will only be examined within Times 2, 3, and 4 (Levels B and C). The lack of obligatory occasions is largely due to the limited language abilities of students at this level; pair and free movement activities that I examined focus almost exclusively on set questions given by the teacher and simple answers practiced as a class. The question types expand in Level B to include some of the Group Y morphemes, such as, from January 14, 2003, the past irregular and the article *the*:

1) When did you come to the USA?

The answer to this question includes both a month and a day, giving the preposition *in* several obligatory contexts. Table 11 and Figure 13 show the percent accuracies of the Group Y morphemes over Levels B and C.

	Time 1 (Level A)	*Time 2 (Level B)*	*Time 3 (Level B)*	*Time 4 (Level C)*
In	n/a	89.7	93.3	86.7
Articles	n/a	70.7	83.9	81.3
Plural	n/a	56.4	69.2	55.6
Progressive	n/a	91.7	83.3	81.3
Past Irregular	n/a	46.8	90.5	33.3

Table 11. Group Y percent accuracy over time, by level

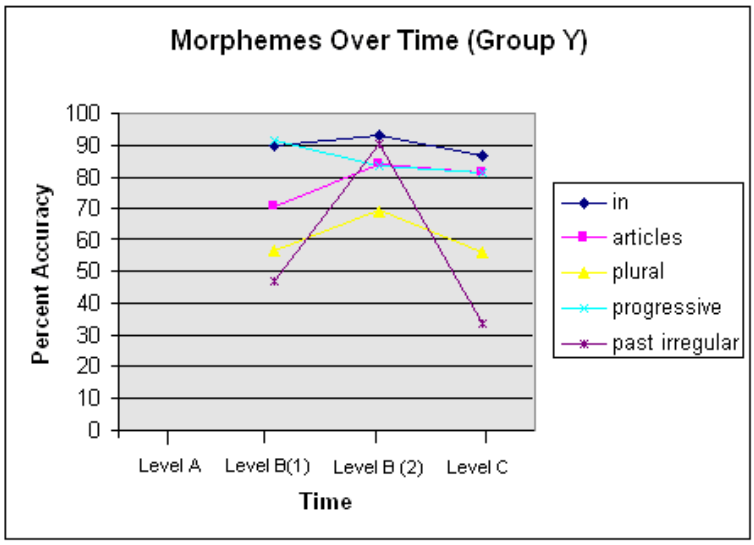


Figure 13. Group Y morphemes, percent accuracy over time, by level

Of the group Y morphemes, the preposition *in*, the articles *the* and *a*, the plural, and the past irregular all increase in percent accuracy from time 2 to time 3. The progressive decreases slightly from time 2 to time 3. All five of the morphemes in Group Y then decrease in percent accuracy from time 3 to time 4. Some of this may be due to the Level C data having been collected over a much broader range of time, but it also may be due to differences between Levels B and C (see Appendix D). While both levels focus on communicative competence, Level C builds on Level B by providing fewer set questions and answers. Instead, more topics are provided, allowing students the opportunity to figure out how to ask or answer a question rather than having an example question or answer in front of them from which to copy or repeat. Therefore, a few articles or a plural *–s* are left off, a preposition is forgotten here and there.

This would not explain the more than 50% decrease in the past irregular between times 3 and 4, however. This significant change is due almost entirely to one activity in Level C, on May 4, 2004. In this conversation, Abby and her partner, Muna, have been directed to talk about what they *have to* do today and tomorrow, and what they *had to* do yesterday. When Abby mentions that yesterday she had to work, the conversation takes a turn and the two students begin sharing more about their lives. This ensuing conversation is, of course, entirely unstructured by the teacher, and there is a definite change from a focus on form to a focus on understanding one another. While their conversation is successful in that they ask and answer several questions and negotiate any breakdowns in communication, there are a few errors with past irregular verbs. More than once Abby uses the present form of the verb "come" instead of "came," as well as "go" instead of "went." The other Level C activities I looked at only rarely include instances of past irregular verbs, which is why the percent accuracy of this morpheme is so low in Level C. This is reflected when the data are analyzed by task, which will be detailed in the next section.

Group Z morphemes by level

The group Z morphemes include the preposition *on*, the possessive, the 3rd person regular and 3rd person irregular morphemes, and the uncontractible and contractible auxiliaries. As mentioned above, none of the group Z morphemes had at least five obligatory occasions in Level A or Level B (1), making it difficult to track them over time. However, it is interesting to examine why these morphemes were not used as much in these levels. First, none of the Group Z morphemes are present in

formulaic chunks taught or used in Level A. In fact, these morphemes came up almost exclusively in reading activities, where Abby was reading aloud from a book or worksheet, for example, or using a book to tell her partner about what she had read. The 3rd person regular and irregular morphemes were not present in conversational activities. This is probably partly because when students begin to learn a language, they tend to talk mostly about themselves, not about others, which would require the use of the 3rd person.

This brings me to the next section of this chapter, which focuses on the classroom tasks. The lack of obligatory occasions for the Group Y morphemes in time 1 (Level A) and the lack of obligatory occasions for the Group Z morphemes overall suggest that classroom level and task both have an effect on which morphemes are present or absent in Abby's language. Next I will explore the effect of the amount of language support from the teacher on the presence and absence of the morphemes.

Morphemes by Task

In order to determine whether task plays a role in the presence or absence of the morphemes, the twenty-five activities can be examined in a number of ways. I chose to examine them according to the amount of language support provided by the teacher and the goal of the activity by creating two continua in order to differentiate between *more supported* and *less supported* activities. Using the two continua, each activity was rated according to the amount and type of language materials provided by the teacher, and the task content as controlled by the teacher and the students (see Figure 14).

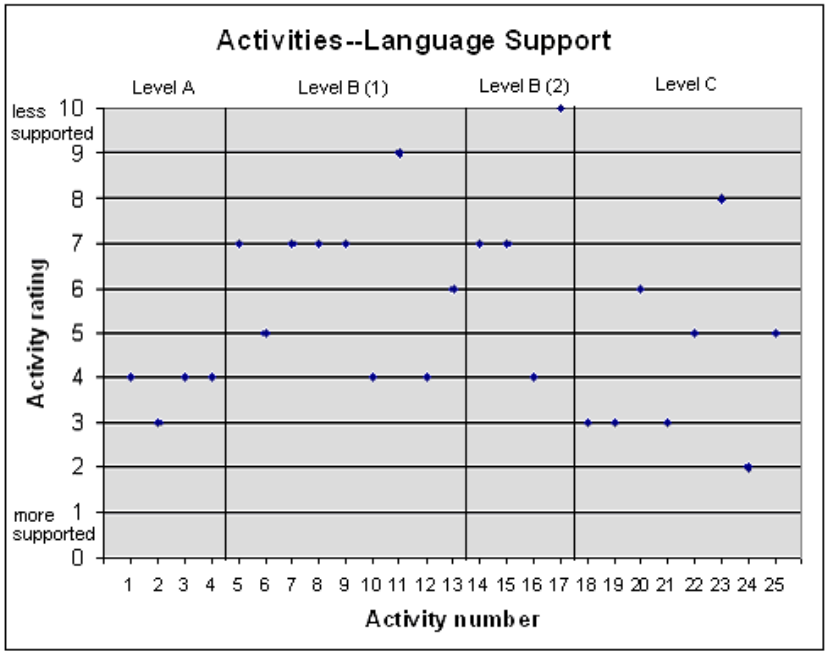


Figure 14. Language support ratings of the 25 activities (repeated from page 57)

Key to Figure 14

- Activities 1-4 occur in Level A (Fall 2002)
- Activities 5-13 occur in Level B (1) (Winter 2003)
- Activities 14-17 occur in Level B (2) (Spring 2003)
- Activities 18-25 occur in Level C (over three terms)
  - --Activities 18-20 in Term 1 of Level C (Fall 2003)
  - --Activities 21-22 in Term 2 of Level C (Winter 2004)
  - --Activities 23-25 in Term 3 of Level C (Spring 2004)

However, the amount and type of language support at the very beginning levels of English instruction is very different from intermediate and advanced levels, as evidenced in these data. In Level A, all of the four activities are rated as more supported, so it is not possible to analyze the presence or absence of any morphemes in more supported versus less supported tasks. Term 1 of Level B has two more supported activities and six less supported activities. Term 2 of Level B has one more supported activity and three less supported activities. Combining these three terms

gives a total of seven more supported activities and nine less supported activities, a number that is not equal but is close enough to allow comparison. I did not include the data from Level C because the data collection took place over a much longer period of time (three terms) than the other levels, which can each be counted as one term. Thus the Level C data primarily contribute to the overall picture of the types of tasks present in the different levels, as well as the acquisition of morphemes over time.

Group X morphemes by task

Table 12 and Figure 15 show the percent accuracies of the Group X morphemes in the sixteen tasks from Levels A and B and how they compare between task types.

	More Supported	*Less Supported*
Past regular	36.4	25
Uncontractible copula	92.1	78.7
Contractible copula	90	93.9

Table 12 Group X morphemes, percent accuracy by task

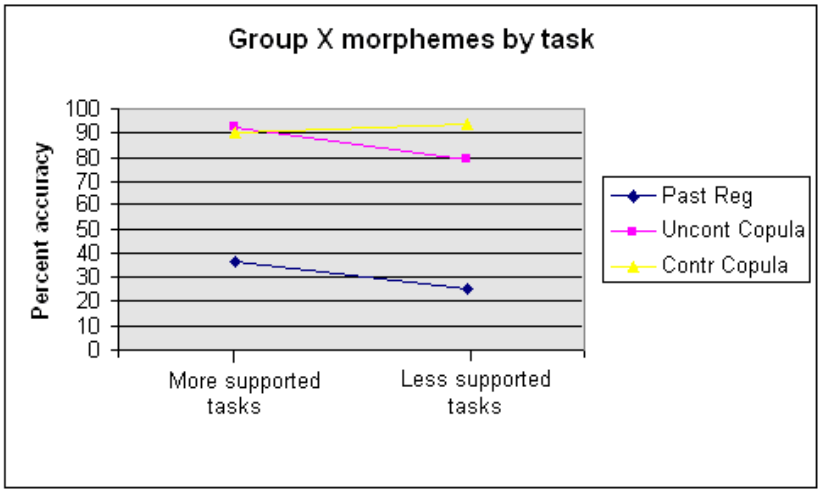


Figure 15. Group X morphemes by task (Levels A and B)

Figure 15 shows that both the past regular and the uncontractible copula morphemes go down slightly in percent accuracy in less supported tasks. These data support what I suspected, in that more supported tasks are more likely to have higher percent accuracies of the morphemes. Perhaps this is because, in more supported tasks, the morphemes are present in models that are meant to be followed, usually in the form of questions/answers provided by the teacher or in the book. Less supported tasks, then, being more communicative and open, should have lower percent accuracies, perhaps because the morphemes more easily fall to the side when communication—not perfect grammar—is the major goal. When there is no model to follow, the language reflects both contextual influences as well as the students' own abilities. The contractible copula, interestingly, goes up slightly in percent accuracy in the less supported tasks, but this is probably because the morpheme is very near to being acquired by Abby, so task does not play a major role in its presence or absence in obligatory contexts.

Group Y morphemes by task

In order to provide further evidence as to whether task seems to play a part in the presence or absence of these morphemes in obligatory contexts, I also analyzed the five Group Y morphemes (See Table 13 and Figure 16 below). However, there were not enough occurrences of the preposition *in,* the plural, or the progressive morphemes in more supported tasks to merit including them in this section.

	More Supported	*Less Supported*
In	n/a	91.1
Articles	82.7	71.4
Plural	n/a	65.2
Progressive	n/a	82.6
Past Irregular	81.8	51.5

Table 13. Group Y morphemes, percent accuracy by task

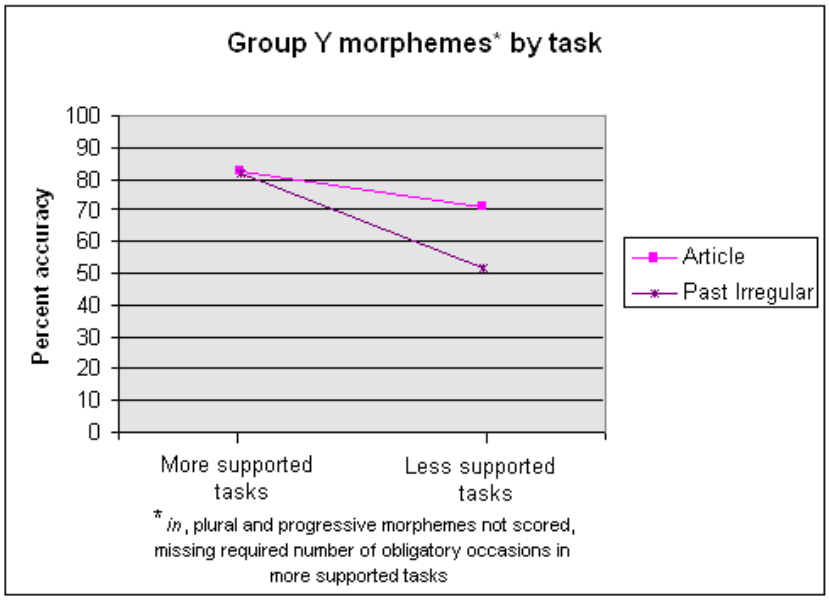


Figure 16. Group Y morphemes by task (Levels A and B)

Figure 16 shows that, like the past regular and uncontractible copulas of Group X, the articles and the past irregular morphemes both have higher percent accuracies in the more supported tasks than in the less supported tasks. Although this is not conclusive evidence that task plays a role in the presence or absence of these morphemes in obligatory contexts, my data show that the amount of language support in a task does influence at least four of the fourteen morphemes I analyzed: the past regular, the uncontractible copula, the articles, and the past irregular morphemes.

Group Z morphemes by task

The six group Z morphemes did not have enough obligatory occasions in Level A or Level B (1) to allow analysis by task.

Other issues

Two other issues regarding the morphemes are important to note. These include occurrences of overuse and ambiguous cases. See Appendix A for definitions of the morphemes and further information on determining obligatory contexts.

Overuse

Overuse has been tied by some researchers, for example Pica (1983), to more target-like utterances. Instead of using occasions of obligatory context, a researcher can analyze percent accuracy based on occasions of target-like context. While overuse does show that a learner is using a morpheme, which is important for communication and acquisition, it does not necessarily make an utterance more correct if the morpheme is not required in that context. This is one reason that I chose to calculate percent accuracy based on occasions of obligatory context rather than target-like context, but the amount and types of overuse in these data are still interesting to examine.

Overuse of the morphemes, overall, was not common in these data; in fact, there were only 35 occurrences of overuse, from a total of approximately 868 morphemes, accounting for about 4%. Only three morphemes were overused with any consistency. The articles were the most commonly overused, with a total of eleven occurrences. Abby overused articles in statements like "I go to school by a bicycle"

when "I go to school by bicycle" would be correct. The plural –s was overused seven times in only two activities, in situations like "three news words" instead of "three new words," and "I no have times" for "I don't have time." The uncontractible copula *are* was used in five situations where *do* should have been used, such as "where are you work" and "where are you come from."

Ambiguous cases

In the course of my data analysis, I also came across several ambiguous cases which affected my counting of the morphemes. There were 47 morpheme occurrences that were not counted because they were ambiguous, for one of three main reasons. The first reason was ambiguity of meaning, which accounted for 25—more than half—of the ambiguous cases. This included all the situations where a morpheme was present but it was not entirely clear what Abby meant to say and there was another obvious way to say it which would use a different morpheme(s). For example, when Abby says "Joon is interview at work" it is impossible to determine whether she means to say "Joon is at an interview at work" or "Joon is interviewing at work." The ambiguity thus affects whether the *is* is a copula or an auxiliary, as well as whether the missing obligatory context is an article *an* or a progressive –*ing*. Another common occurrence of this type of ambiguous case affected articles. If it was unclear what the word following an article was, as in "I watch TV and buy a* xxx,"[8] I counted the article as ambiguous, as it was impossible to establish whether the article was obligatory. The second type of ambiguous case resulted from pronunciation,

[8] xxx denotes unrecoverable language and could be any number of syllables or words. See Appendix B for other transcription protocols.

accounting for 14 of the total number of ambiguous cases. The most common problem revolved around situations where it was impossible to determine whether Abby was using the backchannel "uh" or the article *a*. The final type of ambiguous case was due to repetition, of which there were 8 occurrences. I counted a repeated morpheme as ambiguous if it was immediately following a counted morpheme, i.e. there were no intervening words between a morpheme and its repetition. Although repetition is very common in beginning-level speech, most repetitions were actually able to be counted in my data because there was at least one intervening word between the two morphemes.

Summary

To conclude this chapter, I will review my three research questions and answer them.

1) What morphemes are present in the speech of an adult learner from a Chinese L1 background, at the very beginning stages of English acquisition (Level A)?

Several morphemes are present in Abby's Level A speech. Of the fourteen that I looked at, only seven had obligatory contexts (*in*, the articles, the past regular, the past irregular, the uncontractible copula, the contractible copula, and the uncontractible auxiliary). Only five of those seven morphemes have correctly filled obligatory contexts in Abby's language: the article *a*, the past irregular, the uncontractible copula, the contractible copula, and the uncontractible auxiliary. Because Level A is as close to the beginning of English language learning as classroom levels can be, it is not surprising that there are not many obligatory contexts

for any of the morphemes. Level A focuses more on exchanging basic information than on grammatical understanding, and repetition of formulaic chunks is an important part of communication at this level. This mirrors first language acquisition, where lexical items are acquired before grammatical items.

All of the activities in Level A were rated as "more supported," as there was a lot of language support given to the students by the teacher. Accordingly, I found that most of the morphemes correctly present in Abby's speech occur in formulaic chunks taught by the teacher, such as "What's your name" and "Where are you from." When Abby did have the opportunity to expand from these simple questions and answers, such as in one activity where Abby and her partner talk about where they are from while looking at a large map in the classroom, her language is made up primarily of repeated lexical items and non-verbal information, such as pointing, smiling, and laughing.

2) Does morpheme presence or absence change as the learner progresses to higher levels (Levels B and C) of English classes?

While I initially speculated that the morphemes would be present more (i.e. have higher percent accuracies) as Abby progressed to higher levels, I found that the morphemes' percent accuracies actually fluctuated quite a bit throughout the 20 months of data collection. The Group X morphemes, which could be tracked from Level A onward (the past regular, uncontractible copula, and contractible copula) all had rather different percent accuracies. The past regular started out at zero percent accuracy in Level A, and moved steadily upwards until it was present in 75% of

obligatory contexts in Level C. The uncontractible copula and contractible copula both started out in Level A at about 90% presence in obligatory contexts and stayed fairly stable over time. The Group Y morphemes fluctuated more over time, most moving up in percent accuracy from term 1 in Level B to term 2 in Level B, then going down in percent accuracy in the Level C data. Interestingly, the majority of Group X and Y morphemes went up in percent accuracy from term 1 in Level B to term 2 in Level B, so it seems that this second term of Level B might have acted like a review for Abby in some ways. Perhaps less new information or language was introduced during this second Level B term, allowing her to focus more on morphemes. Then, when she moved to Level C, the new information and language became more important than the morphemes, making the percent accuracies go down in many instances.

I found that the classroom level has a significant effect on which morphemes even have obligatory contexts in these data. In Level A, only seven of the fourteen morphemes had obligatory contexts in the pair and free movement activities I looked at. Of those seven morphemes, the majority only had obligatory contexts in formulaic chunks that had been taught by the teacher. This is likely because students do not have a lot of their own language at this level, and in order to participate in pair or free movement activities, they need to be able to ask and answer at least a few simple questions. Thus most of the morphemes present in these activities revolved around the first and second person, "I" and "you." Levels B and C introduced more

obligatory contexts for more morphemes, as the language abilities of the students increased.

Overall, I found that the presence and absence of the morphemes did not change a lot as Abby progressed to higher levels of language instruction. What did change, depending on level, was which morphemes had obligatory contexts at all.

3) Does task seem to affect morpheme presence or absence? If so, how?

Task seems to affect morpheme presence/absence in two ways. First, not all morphemes were present in every single activity, so which morphemes even had obligatory contexts in an activity depended on the task at hand. For example, very few activities included any occurrences of the 3rd person regular or 3rd person irregular present tense verbs. Those few activities that did have obligatory occasions for these morphemes occurred in Level C, when class activities begin using the 3rd person more.

Second, task seems to affect morpheme presence/absence by the amount of language support provided by the teacher. Initially, I suspected that the morphemes in those activities which had been deemed "more supported" would have higher percent accuracies. This is because the more supported activities tended to focus more on form, and also usually had obligatory occasions of morphemes in close visual proximity to Abby as she carried out the task, either being written on the board, or present on a worksheet or in a book. Additionally, I thought that the morphemes in less supported activities would have lower percent accuracies, as these activities tended to be more open and communicative in nature, where the purpose was for students to converse, not just repeat set questions or answers. Overall, my data

supported these two hypotheses. My findings suggest, overall, that task does play a role in the presence/absence of some of the morphemes in obligatory contexts.

Chapter V: Discussion

Introduction

Because so few previous studies in morpheme acquisition have focused on beginning-level adults studying English, this case study questioned which morphemes are actually present in a beginning level classroom, and how morpheme use changes over time and over task difference. My findings show that, right at the beginning of ESL instruction, several of the morphemes I looked at do have obligatory occasions in my subject, Abby's, speech. These morphemes are typically present in formulaic language, such as questions and simple answers, taught in the classroom by the instructor during an activity's warm-up. After the warm-up, the questions are then often used in communicative activities, such as activities where students ask the questions to several other students and fill out charts which require minimal language. Thus morpheme occasions which are obligatory when the teacher was presenting the lesson are often not correctly filled when students participate in a communicative activity.

Over time, I found that the percent accuracy of most of the morphemes changed distinctly. Only one, the contractible copula, stayed close to 100% accuracy most of the time; other morphemes fluctuated greatly, such as the past irregular, which changed from 47% accuracy in Time 2 to 91% in Time 3, down to 33% in Time 4. Because of the major fluctuation of several of the morphemes, it is interesting to question why this is so. In this study, I chose to investigate the language support of

each activity represented in my data. By devising two continua, I rated the twenty-five activities and divided them into two categories, those that were *more-supported*, in that the teacher provided a lot of language support, and those that were *less-supported*, in that the students had more control over the language they used. Those activities that were more focused on structure, on appropriately practicing certain grammatical forms, and that included more written language tended to fall into the more-supported category. Those activities that were more focused on communication, on obtaining information from one or more students, and that contained more oral than written language, fell into the less-supported category. While not all of the morphemes could be examined this way because of a lack of obligatory contexts in one category or the other, those that could did follow a similar pattern: their percent accuracies were higher in more-supported activities than in less-supported activities. Therefore, those activities that had more language support from the teacher resulted in more accurate use for four of the five morphemes that could be examined this way.

These findings raise many questions about language and acquisition. In this chapter, I will first discuss the notion of morpheme acquisition, especially in terms of second language learning adults. Regarding my own data, what morphemes did I feel were acquired by Abby, and which are still in the process of being acquired? Second, I will discuss previous studies in morpheme acquisition and suggest possibilities for future studies. Third, by focusing on the beginning-level ESL classroom, which is a seriously under-represented setting in SLA research, I will discuss what my results reveal about such classrooms, including what kinds of activities are typical as well as

when and how morphemes are generally used. Finally, my research can add to the debate on the nature of classroom language, as well as the different purposes of language in the classroom, specifically those of communication and structural practice.

Morpheme Acquisition

Most longitudinal morpheme studies have followed Brown (1973) and termed acquisition as the first of three subsequent data collection sessions when a morpheme is supplied 90% or more of the time. Cross-sectional studies, which usually look at just one point in time, have termed acquisition as just 90% suppliance in obligatory contexts, so any morpheme, at that point in time, which was at 90% or higher percent accuracy would be termed "acquired." Using the longitudinal definition with my data, only the preposition *in* and the contractible copula could be considered "acquired," but this would be problematic. The preposition *in,* while above 90% in the first three sessions in which it had obligatory contexts, then dips down to near 60% in two later sessions. Does this mean that it is not really acquired? The contractible copula, while always near 90% accuracy, is used in so many formulaic chunks that one must question whether 90% suppliance in formulaic obligatory contexts can really be considered *acquired*.

Applied linguists have argued for years as to what "acquired" means. Ellis (1994) notes that some researchers "consider a feature has been acquired when it appears for the first time" (p. 14), while others, especially those who have researched acquisition orders, use the definition of an item being acquired when it is present in 90% or more of its obligatory contexts. "Thus, a distinction can be made between

acquisition as 'emergence' or 'onset' and acquisition as 'accurate use'" (Ellis, 1994, p. 14). Unfortunately, both of these phenomena continue to be described by the same term which "makes it very difficult to compare the results of one study with those of another" (Ellis, 1994, p. 15).

In the context of this study, I have thought about acquisition as both of these different possibilities. If I think of acquisition as "emergence," then all fourteen of the morphemes I examined would have been acquired by Abby over the course of the twenty months of data collection and I could create an "order of acquisition" which would detail the order that the morphemes first emerged in her speech. But this does not reveal very much about her language change or progress; examining Abby's use of the morphemes over several months would reveal more. Also, because everything in my study revolves around classroom language, the level or purpose of the task will affect which morphemes are first spoken (or "acquired" in this first sense) and will also therefore affect the resulting order. For example, if on the first day of class the teacher required the students to ask "what's your name" "where are you from" and "do you live in a house or an apartment," then if the students followed her directions and repeated these questions when talking to one another, the resulting "order of acquisition" would be 1) contractible copula, 2) uncontractible copula, 3) *in*, 4) article. As I found, beginning level classrooms often depend on formulaic chunks and unanalyzed language, focusing on meaning more than form, in order to give students the language to communicate with one another on basic terms. This "acquisition order," possibly made up of different formulaic language required by the teacher's

lesson, would describe when the morphemes were first used in Abby's speech in the context of this particular classroom setting. It would not reflect Abby's own understanding of the morphemes or give much insight as to why they are present in some obligatory contexts and not others. This is probably why the studies in this area of SLA research have not chosen to define acquisition as onset or emergence, but as a point when a morpheme is correctly present most of the time.

Acquisition orders, then, have been utilized to describe rather different language phenomena, depending on the definition that is being used. An acquisition order should describe the order in which a set of items, morphemes in this case, reach a point in which they are used productively by a learner, whether this point is 90% suppliance in obligatory occasions or something lower. This should only be done over a significant amount of time, after which all morphemes in question have reached that point of productive suppliance, which could take several years in the case of SLA. As mentioned above, if forced to use the definition of 90% suppliance, only the preposition *in* and the contractible copula would have been acquired by Abby in the 20 months that my data span, which leads to a very short order of acquisition: 1) *in*, 2) contractible copula. More time would be necessary for this order to expand, and some morphemes may never reach this point, due to fossilization or other factors. Some advanced second language learners may consistently leave a morpheme off in some contexts but supply it in others; does this really mean that they haven't acquired it?

Acquisition, perhaps, needs to be measured differently between first language learners and second language learners. Most first language learners do eventually

reach 100% accuracy (barring pronunciation factors, slips of the tongue, etc.). Further, we must take into consideration the goals of the second language learner and the language classroom. Ninety percent or 100% accuracy is probably not a realistic expectation for second language teachers to have for their students, especially adults. Many teachers strive to make their students proficient, to help them to be understood by as many people as possible, to be communicatively competent. And accuracy is certainly not the only factor necessary for communication. Canale and Swain (1980), two of the first researchers to look at communicative competence, identify three central components which include grammatical competence, sociolinguistic competence, and strategic competence. Thus when attempting to determine what it means to *acquire* something in a second language we should also look at use. Is the structure being used in a way that is productive? Does it impede communication when the structure is malformed or left out? However, this is problematic when the issue at hand is grammatical morphemes, many of which, when left out, do not impede communication. For example, bound morphemes like the past regular *-ed* or the plural *–s* are often not the only markers of the past tense or plurality in a sentence: a sentence like "yesterday I walk to the store" is obviously about a situation that took place in the past (yesterday), and in "my dad has three dog," the quantifier *three* expresses plurality.

In these terms, one can question whether it even matters if morphemes are "acquired" or not. If the teacher's goal is for his/her learners to be able to communicate, and not using a morpheme most of the time does not impede

communication, why study morphemes at all? But, in most instructional settings, accuracy is important in order to prepare students for future academic study and for finding and keeping good jobs. One hundred percent accuracy is probably not a realistic objective, but communicative second language programs and classes should develop students' communicative competence and help them to become as understandable as possible. Grammatical morphemes are widespread in the English language and thus being able to use them more correctly than not *is* important to such learners, otherwise they probably wouldn't bother taking ESL classes.

For second language learners in an instructional setting, then, what is the best way to define and measure acquisition? It is important to take into account both correctness of an item and understandability of a learner's language, or, in Gass and Selinker's (2000) words, "one needs to consider not only the actually forms, but also the context in which the forms occur" (p. 58). One way to think of acquired is whether it seems to "belong" to a learner or not. This definition takes some importance away from 90-100% accuracy; whether it is used correctly all the time or not, the learner is using it in their output, which I think is more important. In order for a learner to use a grammatical item, they must have at least some idea of its form and use, whether or not these are correct or not. By using the item in their output, they open themselves up to correction from those with whom they communicate. Further, research has shown that in order for a learner to use an item, they must have "noticed" it first, and "noticing, then, leads to reassessment, which may be an on-the-spot reassessment or involve longer-term complex thinking about the issue" (Gass and

Selinker, 2000, p. 290). If a morpheme is avoided, the learner is probably not comfortable using it, and it doesn't "belong" to them, and I would argue, is not acquired.

Looking at my own data, it seems that somewhere in the middle, when Abby uses a morpheme at 60 percent accuracy or above, is when I am confident that it is not being avoided. At this point, Abby is using the morpheme more often then leaving it off, using it more correctly than incorrectly, and as its usage may not be perfect, it could be easily thought of as "acquired." Even if it is only "acquired" in formulaic chunks, as may be the case with the contractible copula, it still belongs to Abby in those contexts, is used accurately, and I consider it "acquired." By this definition, her order of acquisition would include six morphemes and would be as follows:

#	Morpheme
1	Contractible copula
2	Uncontractible copula
3	*in*
4	Progressive
5	Article
6	Plural

Table 14. Order of "acquisition" for this study

In comparison to Brown's order for FLA and Dulay and Burt's order for SLA, my order is dissimilar to both. Table 15 shows this comparison. However, it is interesting to look closely at the morphemes themselves, especially when comparing Dulay and Burt's order with my own. Disregarding pronoun case, which I did not follow, and the preposition *in*, which Dulay and Burt (1974) did not follow, the next four morphemes in the Dulay and Burt order (article, progressive, copula, and plural) are also the same morphemes in this study's order. While this study serves more of as

a glimpse into what a beginning-level student's order of acquisition (in terms of certain classroom language) might look like, it is very interesting that the morphemes present are so similar, even if the order itself is dissimilar.

	First Lang. Acq.		Second Lang. Acq.		Second Lang. Acq.
	Brown (1973)		**Dulay & Burt (1974)**		**This study (2004)**
1	Progressive	1	Pronoun case	1	Contractible copula
2	*in*	2	Article	2	Uncontractible copula
3	*on*	3	Progressive	3	*in*
4	Plural	4	Copula	4	Progressive
5	Past irregular	5	Plural	5	Article
6	Possessive	6	Auxiliary	6	Plural
7	Uncontractible copula	7	Past regular	-	
8	Articles	8	Past irregular	-	
9	Past regular	9	Long plural	-	
10	3rd person regular	10	Possessive	-	
11	3rd person irregular	11	3rd person	-	
12	Uncontractible auxiliary	-		-	
13	Contractible copula	-		-	
14	Contractible auxiliary	-		-	

Table 15. Acquisition order comparison between Brown (1973), Dulay and Burt (1974) and this study

Issues Relating to Previous Research

Beyond using different definitions of "acquired," the previous research on morpheme acquisition has been plagued by inconsistencies; a rather stable order of acquisition has been found by some, similar in both longitudinal and cross-sectional studies, but no one has been able to determine why this is. Further, it has been widely questioned whether longitudinal and cross-sectional methods of data collection measure the same thing. My findings show that, with the same data, longitudinal and

cross-sectional views are different and produce different orders. Of course, research is a journey, and each new study usually attempts to build on one or more aspects of previous studies in order to come to a more complete understanding of the issue at large. The history of the morpheme acquisition studies went somewhat differently, however—when these studies first emerged, their findings yielded great excitement. Subsequent studies, instead of taking small steps, examining all possible factors, even performing replication studies, instead jumped forward, asking new questions, looking at different morphemes, using new data collection methods. There was so much to discover in this area that doing a replication study probably seemed boring; the "Holy Grail of SLA research," as Goldschneider and DeKeyser (2001) describe it, was on the verge of being discovered. At the same time, criticisms of the early studies began to emerge, confounding the momentum of morpheme acquisition studies and, within ten years, making new studies in this area rather rare.

One of the major problems with the early morpheme studies is that their published forms leave out several important methodological details. If studies are to continue in this area of SLA, it is vital, first, that researchers have a common scale upon which they describe the level of their learners—the "intermediate" level in an academic setting and the "intermediate" level in a community ESL setting are very different, but these have only recently been differentiated in most research. This is imperative in many areas of SLA research, but especially in the area of acquisition order research. First language studies and the early morpheme studies with children have used MLU, but most other acquisition order studies have somehow bypassed this.

Most studies have found that their resulting order is impervious to age, first language, and level, but because previous studies have not had a common way to describe their learner's levels, the effect is not known. If it differs for students at different levels, or in different settings, or if it doesn't, all of this is vital to know and to answer why this might be. One measure of student level, the Student Performance Level (SPL), has become more widely-used and can describe students from the very beginning stages of learning to those who are quite advanced (See Portland Community College (2)). My findings show that the level a student is at will influence which morphemes are used in their classrooms, and thus could influence an order of acquisition. In Level A, fewer morphemes have obligatory contexts and therefore Abby uses fewer morphemes than in Levels B and C. Whether this is because of the level or Abby's individual progress, I am not sure. Perhaps they cannot be differentiated. Thus, if a researcher were to study only a student's Level C language, this language will likely include more obligatory contexts for more morphemes, and may result in a fuller (i.e. including more items) acquisition order than a student whose language is only examined in Level A. This raises the question: is the order of acquisition expanding because learners improve or because the classroom language requires more morphemes?

Another challenge affects all of SLA research, and that is defining natural and elicited language. In terms of simple conversation, it is easy to differentiate between the two—one is totally free and one is constrained. But when research is being done, sometimes elicited language—having a student repeat certain things or answer certain questions—is useful, as it gives some control to the researcher. There is a danger of

"leading the witness" with elicited language, however, which could influence results, and therefore it is better to use it as a measure of the maximum possible for a student, and not as a measure of what a student actually can or does produce on his/her own. Most researchers try to use more natural language in their studies when they want to make claims about language acquisition in general. With advances in technology, such as the recording system at the Lab School, this becomes easier. Learners can talk without knowing what might be researched about their language, and researchers can analyze certain aspects, as long as they are present. Even if certain aspects are not present, it can still be explored as to why.

A classroom certainly contains both natural and elicited language, and everything in between. There will be language when a student is repeating exactly what the teacher or a fellow student has just said, as well as language when the student has been directed to simply "talk about your weekend," which was one of the activities in my data. Thus researchers tend to talk about classroom language in general as its own type of language, and the Lab School setting is considered to produce natural classroom language. Many previous morpheme studies have used what has been termed natural language when it was actually obtained through questions asked by a researcher that were meant to elicit certain structures. The most famous of these is the Dulay and Burt (1974) study, which used the BSM and was highly criticized for calling the resulting language naturalistic. Other cross-sectional studies have used tests to determine how well their subjects could use the morphemes.

My data raise questions about the importance of context in morpheme acquisition studies in general. If some studies only use tests to measure their subjects' morpheme use, this is only collecting a certain type of their subjects' language, in only one context. Like Rosansky's (1976) findings, the morphemes in my data fluctuated greatly over time. If I wanted to fit my data into an order of acquisition or accuracy, it would be different in each of my data collection sessions, different from one week to the next. As other researchers in this area have pointed out, the morpheme use of a typical learner fluctuates depending on a variety of factors, some of which are unknown. Therefore, how can a test ever accurately measure a learner's morpheme acquisition? A test can measure a particular learner's use or understanding of morphemes at that point in time, under the specific conditions of a test. However, this is something that could change in the next day or week, and so it should be presented in those terms.

Since Larsen-Freeman (1975) called her cross-sectional study's results to reflect an "order of difficulty" rather than an "order of acquisition," many other cross-sectional studies have followed suit, although I prefer the term "order of accuracy." If further cross-sectional studies are to be carried out on morphemes, they should present their data in such terms, and not as an order of acquisition. In my opinion, longitudinal studies on many learners (possible now with the new data collection and analysis procedures available through computers) are the best way to provide reliable data that could illuminate whether a stable morpheme acquisition order in second language learning exists.

Some previous studies have claimed that the frequency of morphemes in parent/teacher language does not seem to have an influence on the order of acquisition (Brown, 1973, de Villers and de Villers, 1973). However, most studies do not analyze morpheme frequency in learner speech, which is different in different contexts, and how that affects their data. I found that the frequency of the morphemes in Abby's language ranged greatly; some morphemes (the preposition *on* and the contractible auxiliary, for example) had obligatory occasions only a few times over the twenty months of data collection, while others (including the articles and the uncontractible copula) had more than a hundred obligatory occasions. This matters because, in determining overall accuracy in obligatory contexts, the number of obligatory occasions will affect how we interpret the data. If one morpheme is present four times out of five obligatory contexts and another is present eighty times out of a hundred obligatory contexts, the percent accuracy is the same, but the numbers should be viewed differently, perhaps in terms of the amount of confidence we can have in them.

Overall, many studies have looked at rather different sets of morphemes (see Goldschneider and DeKeyser (2001)), but the researchers often do not explain why they chose to look at the morphemes they did. The main reason for using different morphemes was likely because of a lack of frequency for those morphemes that were left out. The reasons for this lack of frequency are important to recognize. One possible reason is avoidance of morphemes by students, which is a widely-documented flaw in morpheme acquisition studies and is difficult to get around. Only extensive amounts of data or definite obligatory contexts will give decisive evidence

that a morpheme is being avoided. Another possible reason for a lack of frequency of some morphemes, which emerged from my data, is that the task or activity at hand can determine which morphemes will have any obligatory occasions at all. Thus those morphemes that are looked at in data collection but end up not having enough obligatory occasions to draw further conclusions about during data analysis should still be identified. As in my data, the six Group Z morphemes that were not very common were not overly interesting to look at, but I did determine that one reason they were not commonly used was because the activities in these classrooms did not often require them.

Obligatory contexts were rather differently distributed in my data, and were often dependent on the level, as well as the topic that was being discussed in an activity. For example, in Level A, there are very few instances of the 3rd person regular or 3rd person irregular morphemes. But the students typically do not talk about other people, he or she, sisters or brothers, which would warrant use of these morphemes. Instead, they focus on "I" and "you," as they get to know their classmates and practice answering questions that they may be asked in conversations with someone they don't know well. This is because this particular ESL curriculum revolves around giving and receiving personal information, which is perceived to be a need for adult beginning ESL students, many of whom are immigrants and hope to find jobs. In Levels B and C, when students begin talking more about their families or other people, more occasions of the 3rd person regular and irregular emerge.

To summarize, many previous studies have looked at different groups of morphemes but do not say why, and it is possible that by only analyzing those morphemes which were frequent in their own data, researchers have obscured important parts of the overall data, making their resulting order of acquisition incomplete or, worse, incorrect and thereby not representative of learner language.

Aspects of the Beginning-level ESL Classroom

The beginning-level ESL classroom is crucially under-represented in SLA research, which is why the Lab School project exists and is so important to the field. Beginning-level learners depend more on non-verbal information (like gestures and pointing) when they communicate and their pronunciation of words is more difficult to understand than intermediate or advanced learners. It is therefore more challenging to transcribe and research such students, which has lead to fewer studies being carried out. Teaching and learning at this level is critically important to understand, however, as it affects all subsequent levels and research on those levels.

In the course of my two years of work as a Lab School GRA, I have watched many beginning-level classes and discussed a number of issues with fellow GRAs and Lab School researchers, all of which has given rise to my understanding of the activities that occur at this level. There are many different ways to view an activity that a teacher presents to a class; the Lab School coding system focuses on the prompt that starts the activity, the information that the activity is based around, and the language used in the activity, especially as it relates to support from the teacher (NCSALL, 2004). The coding system that I developed for my research takes this third

aspect—language—and more specifically analyzes how much and what kind of support the teacher provides (written, oral) as well as the purpose of the activity (communicative, to converse with another student, or structural, to practice some grammar point or form). I hypothesized that the more support the teacher provides (especially the more written language that the student can refer to while carrying out the activity) and the more structurally-aimed the activity is (more to practice a certain form than to find out information from another person), the higher the percent accuracy of any morphemes with obligatory contexts in those data would be. Similarly, an activity that is based on oral information and is more focused on communication, on human interaction, would have a lower percent accuracy of morphemes. This was based more on my experiences coding classes at the Lab School than on any particular research, but it also relates to focus on form research (Larsen-Freeman and Long (1991)), which has shown that when students are directed to pay attention to grammatical forms, their accuracy with those forms is higher.

Teachers do not set up activities that include tasks which are impossible for their students to successfully complete. At beginning-levels, especially, teachers must know what language students need in order to talk to one another, for example, or to fill out a form for a bank account. It is therefore not surprising that my results show that all Level A activities where students had to talk to other students have a lot of language support from the teacher. Most activities, in fact, revolved around the same few questions, such as "What's your name," "Where are you from," and "How long have you been here." To add variety and require practice, these questions are used in

different ways. One such activity in my data consisted of the teacher directing the students to write the answers to questions (like the ones above) on an index card, and then the teacher collected the cards, passed them back out to different students, and requested the students to ask the necessary questions to find the owner of the index card they were given. As time goes on and students become more familiar with these questions and other commonly-used language, the teacher provides less language support, challenging students to use their own knowledge to ask or answer a question. For example, in Level C, the teacher would be more likely to have the students stand up and talk to three different people, without giving them any of the language they need, and then asking questions about each student afterwards.

An interesting result of my data was the way that my activity rating system rated the amount of language support in a classroom activity. One would expect that as students progressed into higher levels, the amount of language support would decrease as students are able to better communicate in English. However, I found that there were several "more supported" activities in Level C. In fact, there seemed to be an interesting pattern: in Level A, the activities were all more-supported, but as soon as Level B began, there were less-supported activities. This is probably partly because Level B builds upon the questions, answers, and skills practiced in Level A. Instead of adding a lot of new information and language, students are given the opportunity to use the language they have already learned. Level C, then, introduces new language and skills and begins to focus more on grammar and accuracy. These findings are reflected in the course goals of each level (See Appendix D). The Portland

Community College (PCC) website states that one of the goals for Level A is to be able to "use a limited number of expressions and phrases to ask and answer basic questions and make simple statements in role contexts" (Portland Community College (1), paragraph 1). In Level B, this goal expands to "interact in a group to evaluate and solve a problem" (Portland Community College (1), paragraph 2). In Level C, the goals expand even further, and begin to place more importance on accuracy: "Speak with comprehensible pronunciation in a variety of familiar situations. Participate in group work and activities in the English-speaking community with intermediate conversation skills; ask for clarification" (Portland Community College (1), paragraph 3). After Level D, which is considered intermediate and focuses even more on grammatical accuracy, students often enter academic ESL programs, such as PCC's English as a Non-Native Language program. Thus the focus of the ESL program levels at PCC changes from communicative proficiency into more grammatical proficiency, in order to prepare students for academic study and the workforce.

The Nature of Classroom Language

In my study, I worked with a very particular type of classroom language, that of pair and free movement activities. These activities typically took place after some explanation by the teacher, a "warm-up" of sorts that is important to understand. When teachers set up an activity for students, no matter the level, they must give their students the tools they need to successfully perform the activity. Of course, this doesn't always happen, as it is impossible to know or even give exactly what each student needs, but teachers do not purposely set up activities that their students cannot

do. Therefore, at beginning levels, warm-ups often consist of two parts: models and practice. Several of the activities I looked at in Level A contained complete questions (usually no more than three) written out on the board and practiced many times. Often, the teacher asks each student at least one of the questions, so when it comes time for the students to talk to one another and practice on their own, they have heard, seen, and perhaps practiced the language they need to successfully complete the activity.

This raises the question, then—when students are participating in a conversation that they have just practiced, are they using their own language or just repeating? When does language practiced in a classroom belong to a student; how long does it take to become a student's own? Krashen makes a distinction between "acquired" and "learned" language, but many other researchers do not; indeed there is a point where it is impossible to make the distinction.

Several questions appear throughout the data I looked at, questions like "what's your name," "where are you from," and "are you married." Perhaps at the beginning, Abby had to look at the board to remember how to correctly ask these questions, but she often asks them without needing any help. And it's possible that she knew the question "what's your name" before she even entered the classroom—just because it is taught in class, does it not belong to her? Therefore any activity in a classroom will have the possibility of containing different amounts of support depending on each student's particular needs. Even when the teacher has presented a certain question or sentence a number of times, some beginning-level students will not be able to produce it by themselves, while other students would have been able to

produce it without any instruction. In my data, I considered how much Abby seemed to use information from worksheets or that had been written on the board (which was observable) and took this into account in one of the continua that I used to rate the amount of language support in an activity. Also, if Abby and her partner went "off topic" and began using their own language to discuss something that the teacher had not asked them to discuss, I interpreted this time as less-supported. Thus when I rated language support in an activity, it was largely based on my interpretation of what Abby relied on during the pair or free movement participation pattern and how communicatively or creatively based her language was, in comparison to the teacher's directions. Thus I could surmise how much language actually "belonged" to Abby by the amount of language support that was provided and used, as well as the topic of the activity.

In the data I looked at, strictly pair and free movement activities, language is not being taught directly, it is being used. Language when the teacher is leading and the students are answering her questions or repeating what she says would be slightly different. Therefore I would call these pair and free movement activities natural student language, which might be differentiated from natural learner language. It is controlled somewhat by the teacher, in the form of set questions, practiced answers, workbook pages, even as topics. But it is used productively by the students, whether it really belongs to them yet or not.

Directions for Future Research

Like other morpheme studies, my research raises questions about the teaching of these morphemes in a classroom context. If the past regular or the possessive, for example, are among the last morphemes to be acquired by second language learners, should teachers wait to teach them? Which morphemes should be taught early at all? This, of course, relates directly to Pienemann's research on teachability and learnability. Future studies might continue in this area and specifically examine which morphemes seem learnable and which are not, and how this relates to previously-determined orders of acquisition.

Another area of research might focus on the role of L1 language interference on morpheme acquisition. Earlier morpheme studies found little difference in the acquisition orders of learners from several different language backgrounds, but my data show that both grammatical and phonological influences from Abby's first language of Chinese did seem to affect the presence and absence of morphemes in obligatory contexts, thus influencing any resulting order of acquisition or accuracy. Which morphemes seem more subject to L1 interference? What features make the interference likely to be from the L1 and not a different source?

Finally, if this study can serve as a glimpse into what a more large-scale morpheme study using Lab School data might discover, at least one issue is important to keep in mind. I found that both classroom level and task do appear to have a major influence on the kinds of language (and therefore the morphemes) that have obligatory occasions. Therefore it is vital to keep close track of the participation patterns and

activities from which any data is collected, as spoken data from highly-supported activities (like reading a dialogue aloud) should be treated differently than spoken data from less-supported activities (such as talking freely with a partner). It will also be necessary to make a decision as to when language taught in the classroom belongs to the students.

Conclusion

In conclusion, my findings reveal much about the language used in beginning-level classrooms and the nature of classroom language in general. My results also raise questions about some of the previous morpheme order of acquisition research in the field of SLA. Future studies would do well to explain all choices that are made methodologically, in choosing which students or level to look at, which morphemes to examine, even in defining acquisition. New developments in data collection, such as the major five-year Lab School project where hundreds of learners could be examined over time, provide opportunities to carry out morpheme acquisition studies which could be methodologically consistent and could give persuasive evidence about acquisition orders in general.

Although morpheme acquisition studies have fallen out of fashion in the last twenty years—few have been carried out since 1979, when criticisms began to outweigh new research—the major SLA textbooks (Larsen-Freeman and Long, 1991, Ellis, 1994, and Gass and Selinker, 2000) contain significant sections on these studies, treating them as key areas of SLA research of the past, as one of the seminal parts of SLA research. Overall, they state that despite methodological problems and criticisms,

a definite morpheme order of acquisition for ESL seems to hold true. However, this should be questioned again, and technological advances make new studies possible. In conclusion, more studies in this area of SLA are important, especially studies which look at very beginning-level learners and follow them through intermediate and advanced levels of English language learning.

References

Archibald, J. (2001). Second language acquisition. In W. O'Grady, J. Archibald, M. Aronoff, and J. Rees-Miller (Eds.), *Contemporary linguistics: An introduction* (pp. 449-484). Boston: Bedford/St. Martin's.

Bailey, N., Madden, C., and Krashen, S. (1974). Is there a "natural sequence" in adult second language learning? *Language Learning, 24*, 235-243.

Brown, J. D. (1988). *Understanding research in second language acquisition.* Cambridge, England: Cambridge University Press.

Brown, R. (1973). *A first language: the early stages.* Cambridge, Massachusetts: Harvard University Press.

Canale, M., and Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics, 1,* 1-47.

Celce-Mercia, M., and Larsen-Freeman, D. (1999). *The grammar book: an ESL/EFL teacher's course.* Boston: Heinle & Heinle.

Chang, J. (2001). Chinese speakers. In M. Swan and B. Smith (Eds.), *Learner English: A teacher's guide to interference and other problems* (pp. 310-324). Cambridge, England: Cambridge University Press.

Chomsky, N. (1986). *Knowledge of language: its nature, origin and use.* New York: Prager.

Coughlan, P., and Duff, P. (1994). Same task, different activities: analysis of SLA task from an Activity Theory perspective. In J. Brown and G. Appel (Eds.), *Vygotskian approaches to second language research* (pp. 173-193). Norwood, New Jersey: Ablex Publishing Corporation.

de Villiers, J., and de Villiers, P. (1973). A cross-sectional study of the acquisition of grammatical morphemes in child speech. *Journal of Psycholinguistic Research, 2*, 267-278.

Dobrovolsky, M., and Czaykowska-Higgins, E. (2001) Phonology: the function and patterning of sounds. In W. O'Grady, J. Archibald, M. Aronoff, and J. Rees-Miller (Eds.), *Contemporary linguistics: An introduction* (pp. 63-130). Boston: Bedford/St. Martin's.

Doughty, C., and Varela, E. (1998). Communicative focus on form. In C. Doughty and J. Williams (Eds.), *Focus on form in second language acquisition* (pp. 114-138). Cambridge, England: Cambridge University Press.

Doughty, C., and Williams, J. (1998). Pedagogical choices in focus on form. In C. Doughty and J. Williams (Eds.), *Focus on form in second language acquisition* (pp. 197-261). Cambridge, England: Cambridge University Press.

Dulay, H. C., and Burt, M.K. (1974). Natural sequences in child second language acquisition. *Language Learning*, *24*, 37-53.

Dulay, H., Burt, M., and Krashen, S. (1982). *Language two.* New York: Oxford.

Ellis, R. (1994). *The study of second language acquisition.* Oxford, England: Oxford University Press.

Fillmore, L.W. (1989). Teachability and second language acquisition. In M.L. Brown and R.L. Schiefelbusch (Eds.), *The Teachability of language* (pp. 311-332). Baltimore, Maryland: Paul. H. Brookes Publishing Co.

Gass, S.M. and Selinker, L. (2001). *Second language acquisition: an introductory course.* Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Goldschneider, J. M. and DeKeyser, R. M. (2001). Explaining the "natural order" of L2 morpheme acquisition. *Language Learning*, *51*, 1-50.

Hakuta, K. (1976). A case study of a Japanese child learning English as a second language. *Language Learning, 26,* 321-351.

Krashen, S. (1977). Some issues relating to the Monitor Model. In H. Brown, C. Yorio, and R. Crymes (Eds.), *On TESOL '77* (pp. 144-158). Washington, D.C.: TESOL.

Krashen, S. (1981). *Second language acquisition and second language learning*. New York: Oxford.

Krashen, S. (1982). *Principles and practice in second language acquisition*. New York: Pergamon.

NCSALL. (2004). Research experiment: Modified Sustained Silent Reading (MSSR). Retrieved September 29, 2004 from http://www.labschool.pdx.edu/research/methods/experiments.html

Larsen-Freeman, D. (1975). Acquisition of grammatical morphemes by adult ESL students. *TESOL Quarterly, 9*, 409-419.

Larsen-Freeman, D., and Long, M. (1991). *An introduction to second language acquisition research*. London: Longman.

Leow, R. P. (1998). The effects of amount and type of exposure on adult learners' L2 development in SLA. *The Modern Language Journal, 82,* 49-68.

Long, M. H. (1998). Focus on form: Theory, research, and practice. In C. Doughty and J. Williams (Eds.), *Focus on form in second language acquisition* (pp. 15-41). Cambridge, England: Cambridge University Press.

Long, M., and Sato, C. (1984). Methodological issues in interlanguage studies: An interactionist perspective. In A. Davies, C. Criper, and A. Howatt (Eds.), *Classroom-oriented research in second language acquisition* (pp. 253-279). Edinburgh, Scotland: Edinburgh University Press.

Mochizuki, M., and Aizawa, K. (2000). An affix acquisition order for EFL learners: An exploratory study. *System, 28*, 291-304.

O'Grady, W., and Cho, S. W. (2001). First language acquisition. In W. O'Grady, J. Archibald, M. Aronoff, and J. Rees-Miller (Eds.), *Contemporary linguistics: An introduction* (pp. 409-448). Boston: Bedford/St. Martin's.

Perkins, K., and Larsen-Freeman, D. (1975). The effect of formal instruction on morpheme acquisition. *Language Learning, 25*, 237-243.

Pica, T. (1983). Adult acquisition of English as a second language under different conditions of exposure. *Language Learning, 33*, 465-497.

Pienemann, M. (1984). Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition, 6*, 184-214.

Pienemann, M. (1989). Is language teachable? Psycholinguistic experiments and hypotheses. *Applied Linguistics*, *10*, 52-79.

Pienemann, M. and Johnston, M. (1987). Factors influencing the development of language proficiency. In D. Nunan (Ed.), *Applying second language acquisition research* (pp. 45-141). Adelaide, Australia: National Curriculum Resource Centre.

Portland Community College (1). (2004). ESL Integrated Skills Classes. Retrieved September 29, 2004, from http://www.pcc.edu/pcc/pro/basic/esl/ESL

Portland Community College (2). (2004). ESL Levels. Retrieved September 29, 2004, from http://www.pcc.edu/pcc/pro/basic/esl/levels.htm

Reder, S., Harris, K., and Setzler, K. (2003). A multimedia adult learner corpus. *TESOL Quarterly, 37 (3).*

Rosansky, E. (1976). Methods and morphemes in second language acquisition. *Language Learning, 26*, 409-425.

Salaberry, M. R. (2000). The acquisition of English past tense in an instructional setting. *System*, *28*, 135-152.

Tono, Y. (1998). A computer learner based corpus analysis of the acquisition order of English grammatical morphemes. In L. Burnard and T. McEnery (Eds.), *Rethinking language pedagogy from a corpus perspective* (pp. 123-132). Frankfurt, Germany: Peter Lang.

Wei, L. (2000a). Unequal election of morphemes in adult second language acquisition. *Applied Linguistics*, *21*, 106-140.

Wei, L. (2000b). Types of morphemes and their implications for second language morpheme acquisition. *International Journal of Bilingualism*, *4*, 29-43.

White, L. (2003). *Second language acquisition and universal grammar.* Cambridge: Cambridge University Press.

Appendix A: The fourteen morphemes of interest in this study
(All quotes are from Roger Brown's *A First Language* (1973))

1. Preposition *in*

Barring repetition, I counted every instance of the preposition *in.*

2. Preposition *on*

Barring repetition, I also counted every instance of the preposition *on.*

3. Articles

"In general, an article is obligatory in English wherever a common noun (not a proper noun like *Adam*) occurs in a sentence . . . As we have seen *a* is used for nonspecific reference and *the* for specific reference." (p. 264). Like Brown, I only analyzed *a* and *the*, because *an* was not used often enough to follow.

4. Regular plural (-s) allomorphs = /-s/ /-ɜ/ / -ɨɜ/

Most nouns require the plural –s to show plurality. There are some irregular nouns (such as children, women, men) which are used in high frequency, but, like Brown, I only analyzed the regular form.

5. Possessive (-s) allomorphs = /-s/ /-ɜ/ / -ɨɜ/

For the possessive, "The identification of obligatory contexts begins with N + N constructions like *Fraser coffee* but not all such contexts require possessive inflection" (p. 262). "There are difficulties with treating the possessive genitive morpheme as a noun inflection comparable to the plural inflection. In adult English the possessive inflection is very rare with some nouns, and it is sometimes used with [noun phrases] . . . In stages I to V such noun phrases . . . do not appear with the possessive morpheme; the morpheme is limited to single nouns and, usually, to animate single nouns" (p. 262). I did not find many instances of the possessive in my data.

6. Present progressive (-ing) allomorphs = /Iŋ/ and /In/

The present progressive is characterized by a verb ending in –ing, with or without an auxiliary. Adjectives such as "interesting" or "amazing" were not counted, although the –ing ending is present.

"The progressive expresses a temporary duration including the time of the utterance . . . for progressives, generally, we need a more abstract notion: they are true at some time of reference . . . with the primitive progressive [meaning it is missing the auxiliary] one cannot tell whether it is a present, past, or future form, since the auxiliary that carries this information is absent" (p. 316).

7. Past regular (-ed) allomorphs = /-d/ /-t/ /-ɨd/

I counted nearly every instance of the past regular –ed, forgetting that this form can be used with adjectives, as well as past regular verbs. Much of my data for the past regular revolved around the question "are you married," and it was pointed out to

me (during my thesis defense) that in this case, "married" is actually being used as an adjective. However, the phonological features of -ed as a verb or as an adjective are similar and therefore my data includes instances of both.

"Clearly the regular and irregular past constitute partially distinct learning problems, and so there was reason to tally them separately. . . the form *got* was excluded because it seemed to be used like a synonym for *have* though its form suggested a present perfect with a missing auxiliary" (p. 260).

8. Past irregular (many forms including *ran, saw, went*)

There are many forms of the past irregular, but I, like Brown, just listed them as past irregular verbs, without differentiating between different types.

9. Third person singular present indicative regular (-s) allomorphs = /-s/ /-ɜ/ / -ɨɜ

This is the –s in regular nouns in the present tense that is only used with *he, she* and *it.* Brown found that "for the third person singular inflection is it peculiarly difficult to define obligatory contexts . . . Cazden decided to include as obligatory contexts for –s only those cases in which a third person singular subject is combined with some other indication, such as a parental expansion or imitation model, which indicates that –s is the proper form" (p. 261).

10. Third person singular present indicative irregular (such as *does, has*)

The 3rd person irregular "exists in only a few types (for example does, has) but these have fairly high token frequencies, and since the regular and irregular do constitute partially distinct learning problems, Cazden tallied them separately" (p. 260), as did Brown. I followed suit.

11. Uncontractible copula (is, am, are)

"The verb *be* has three present tense forms: *am* (first person singular), *is* (third person singular), and *are* (second person singular and all plurals). These, together with the infinitive *be* are the allomorphs of *be*. The selection of allomorphs is governed by grammar rather than phonology. The *be* forms are used as main verbs (the so-called copula) and also as auxiliaries of the progressive" (p. 264).

I was unable to find anywhere that Brown defined what a contractible or uncontractible form of "be" is, and therefore defined it by myself. The main instances of the uncontractible therefore included questions when the copula or auxiliary started an utterance, such as "Are you married" and the past tense "was." However, perhaps unlike Brown, I also included utterances where a contracted copula or auxiliary could be confused with a different form, such as the contracted "'s" being confused with a possessive in "My birthday is June . . ." or lost in "this's a dog." Upon reflection, I question this decision and were I to reanalyze my data, I would limit the uncontractible copula and auxiliary to just the past tense form and questions.

12. contractible copula. (/-s/ /-z/ /-m/ /-r/)

The copula is *be* used as a main verb (I'*m*, she'*s*, they'*re*, for example), and the contractible included all instances where it was contracted by Abby as well as all instances that are commonly contracted in written form.

13. Uncontractible auxiliary (is, are)

See explanation about the uncontractible copula above. I decided that "My purse's falling apart" and "All of Mary's shoes're falling apart" ought to be considered ungrammatical, and thus called such instances uncontractible.

14. Contractible auxiliary, (/-s/ /-z/ /-m/ /-r/)

Auxiliaries are used with a progressive verb (I'*m* going, she'*s* going, they'*re* going).

Appendix B: Transcription Conventions[9]

*** (asterisk)**: a word that is ambiguous as far as its morpheme characteristics, for example the article "a" might be transcribed but it is impossible to tell whether it is the article "a" or whether it is the backchannel "uh"

(()) (double parentheses): whatever is inside is extra information, such as a gesture or other nonlinguistic information

? (question mark): the phrase immediately preceding has rising intonation

. (period): the phrase immediately preceding has falling intonation

<> (angle brackets): means that another language is being spoken. <chn> means Chinese

~~ (tildes): whatever is inside is being spelled out as letters of the alphabet, such as ~c h i n a~

_ (underscore): denotes a false start, with or without a repair following

xxx (three lowercase x's): represents unrecoverable language, could include any number of syllables or words

[9] adapted from the Lab School Transcription Conventions handbook

Appendix C: Portland Community College ESL Levels

The Portland Community College Website gives the following information about its ESL levels:

Level A - This level is for beginners. Students at this level usually can say their names and addresses. They need help to conduct day to day business and usually have trouble giving or writing personal information independently. (Student Performance Level SPL 0-2)

Level B - This level is for high beginners. Students at this level usually can give information about themselves. They can use common greetings but usually can not engage in fluent conversation. (Student Performance Level SPL 2 -3)

Level C - This level is for low intermediate students. At this level, students can satisfy common communication needs in daily life. They can ask and respond to questions and initiate conversations. They may need repetition for unfamiliar topics or when talking about abstractions. (Student Performance Level SPL 3 - 4)

Level D - This level is for the intermediate students. Students at this level can initiate conversations on a variety of topics. They can express their opinion about immediate surroundings and about more abstract ideas and concepts. (Student Performance Level SPL 4 - 6)

From http://www.pcc.edu/pcc/pro/basic/esl/levels.htm

ESL A Integrated Skills- This is first of four levels of English as a second language. Students develop basic English communication. Reading, Writing, Speaking and Listening skills are taught in the context of communicating in adult life roles as family and community members, workers, citizens and lifelong learners. A language placement test is required for enrollment. Students will be able to use the English language to communicate as related to roles as family members, community members, workers, lifelong learners, and citizens. They will be able to use the English language to communicate basic needs to do the following:

- Convey personal information orally and in writing
- Complete simple forms
- Use a limited number of expressions and phrases to ask and answer basic questions and make simple statements in role contexts (orally and in writing)
- Give and follow simple oral and written directions
- Ask for clarification
- Recognize and use letters, numbers, and common sight words
- Read simple printed information and common signs and symbols

ESL B Integrated Skills- This is the second of four levels of English as a second language. Students develop basic English communication. Reading, Writing, Speaking and Listening skills are taught in the context of communicating in adult life roles as family and community members, workers, citizens and lifelong learners. A language placement test is required for enrollment. Students will be able to use the English language to communicate as related to roles as family members, community members, workers, lifelong learners, and citizens. They will be able to initiate and participate in conversations on common subjects and to satisfy basic needs, ask for clarification and the following:

- Interact in a group to evaluate and solve a problem
- Read and interpret simple materials on familiar topics
- Write a short paragraph and notes using accurate basic grammatical structures and spelling
- Use telephone technology to communicate

ESL C Integrated Skills - This is the third of four levels of English as a second language. Students develop low intermediate English communication. Reading, Writing, Speaking and Listening skills are taught in the context of communicating in adult life roles as family and community members, workers, citizens and lifelong learners. A language placement test is required for enrollment. Students will be able to use the English language to communicate as related to roles as family members,

community members, workers, lifelong learners, and citizens. They will be able to do the following:

- Speak with comprehensible pronunciation in a variety of familiar situations
- Participate in group work and activities in the English-speaking community with intermediate conversation skills; ask for clarification
- Use English to evaluate and solve a problem
- Read and comprehend easy short fiction and nonfiction on familiar subjects (includes graphs, charts, maps, etc.)
- Write basic paragraphs and letters using grammatical and structural accuracy
- Use telephone and computer technology to communicate and access information

ESL D Integrated Skills - This is the fourth of four levels of English as a second language. Students develop intermediate English communication. Reading, Writing, Speaking and Listening skills are taught in the context of communicating in adult life roles as family and community members, workers, citizens and lifelong learners. A language placement test is required for enrollment. Students will be able to use the English language to communicate as related to roles as family member, community member, worker, lifelong learner, and citizen. They will be able to do the following:

- Communicate using English in a variety of situations; use clear pronunciation and verbal and non-verbal cues to convey meaning appropriately in intercultural situations
- Participate in group discussions using English
- Read and comprehend non-simplified print media on familiar subjects from a variety of sources (newspapers, fiction, public information announcements, and web pages)
- Use writing to conduct business in the English-speaking community such as completing forms and applications or writing business or personal letters; write a 3 to 5 paragraph essay conveying opinion or point of view on a current issue
- Access and research information to solve problems and/or participate in activities in the English- speaking community
- Express, plan and communicate personal goals

Appendix E: Data Charts